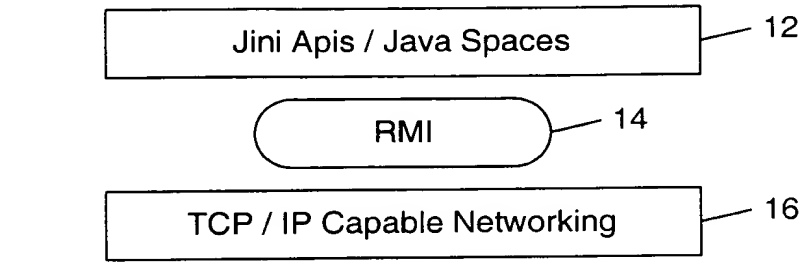


Fig. 1
(Prior Art)

09603768 - 060704

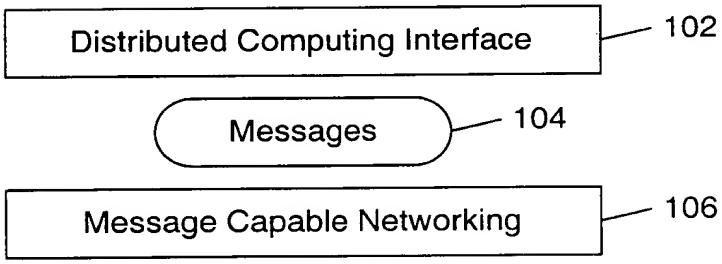


Fig. 2

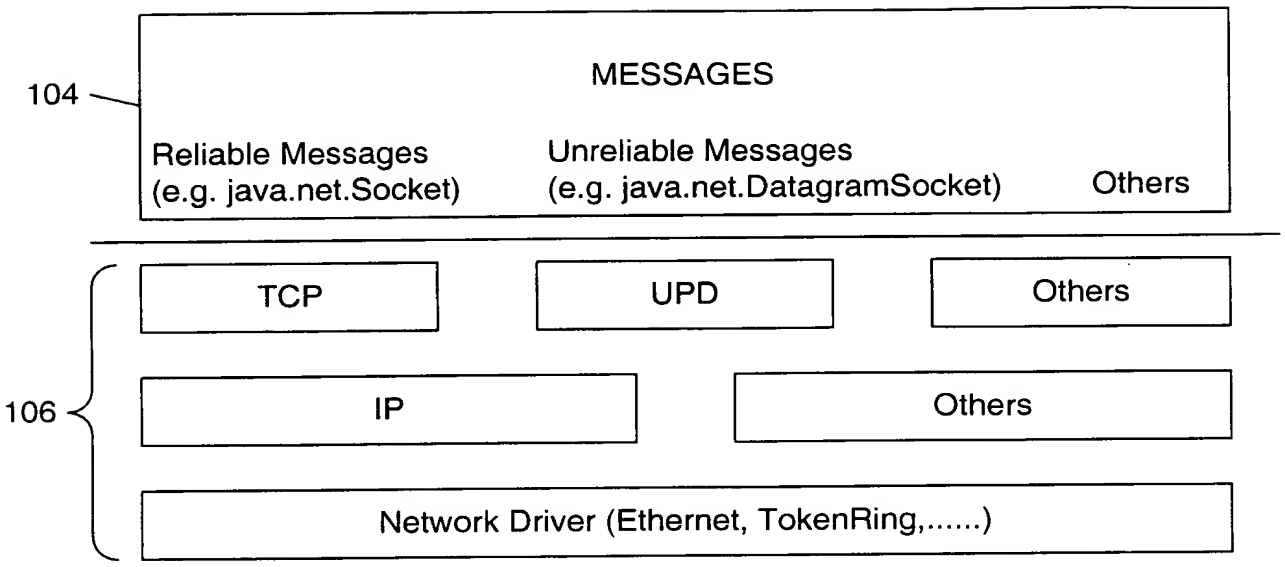

104
MESSAGES
Reliable Messages
(e.g. java.net.Socket)
Unreliable Messages
(e.g. java.net.DatagramSocket)
Others
106
TCP
UPD
Others
IP
Others
Network Driver (Ethernet, TokenRing,.....)

Fig. 3

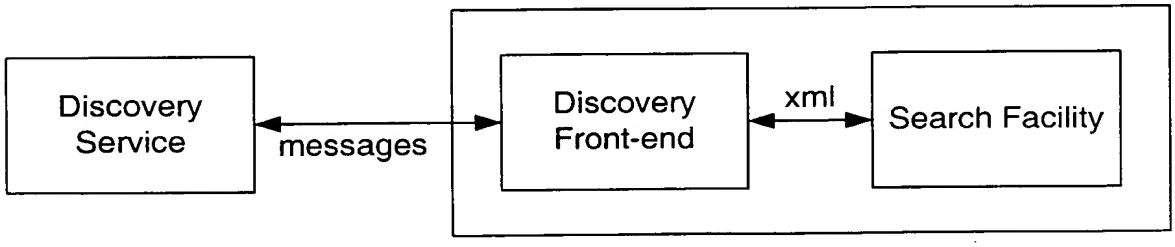

Discovery
Service
messages
Discovery
Front-end
xml
Search Facility

Fig. 4

DOCKET NO. 3060.1

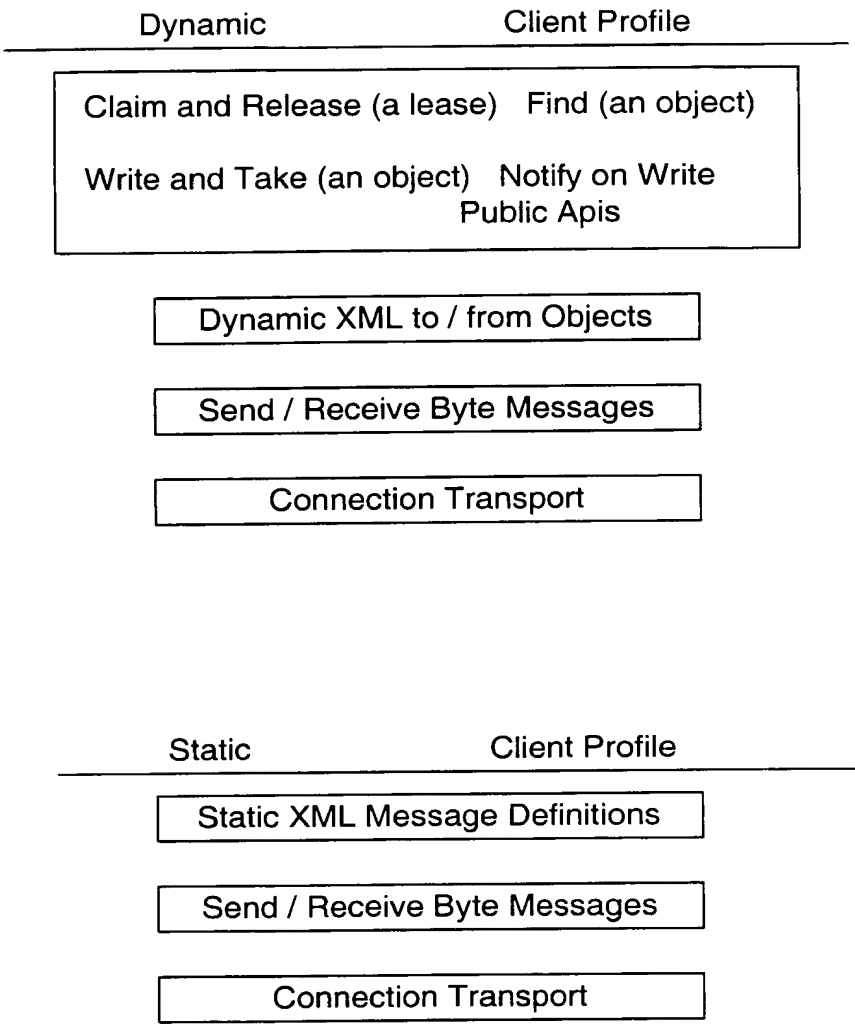


Fig. 5

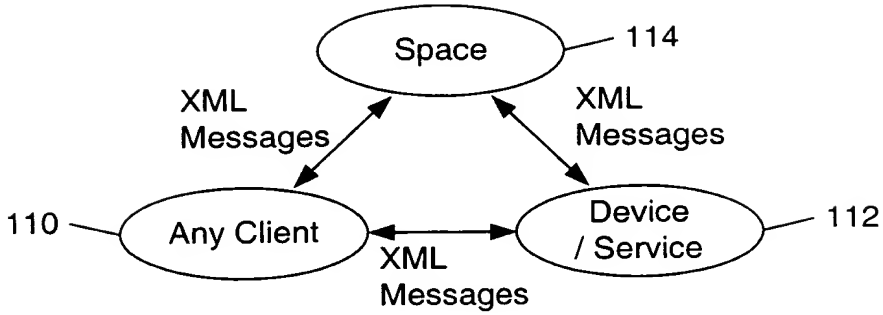

Space
114
XML
Messages
XML
Messages
110
Any Client
Device
/ Service
112
XML
Messages

Fig. 6

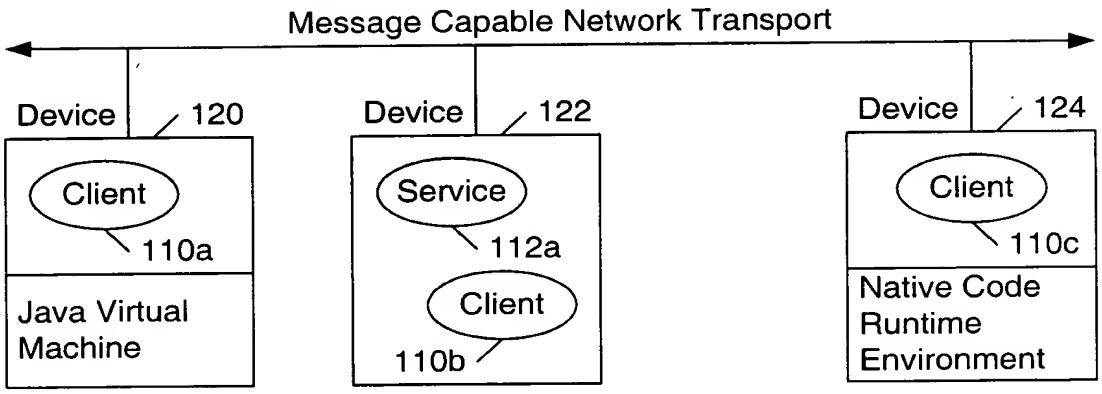

Message Capable Network Transport
Device
120
Client
110a
Java Virtual
Machine
Device
122
Service
112a
Client
110b
Device
124
Client
110c
Native Code
Runtime
Environment

Fig. 7

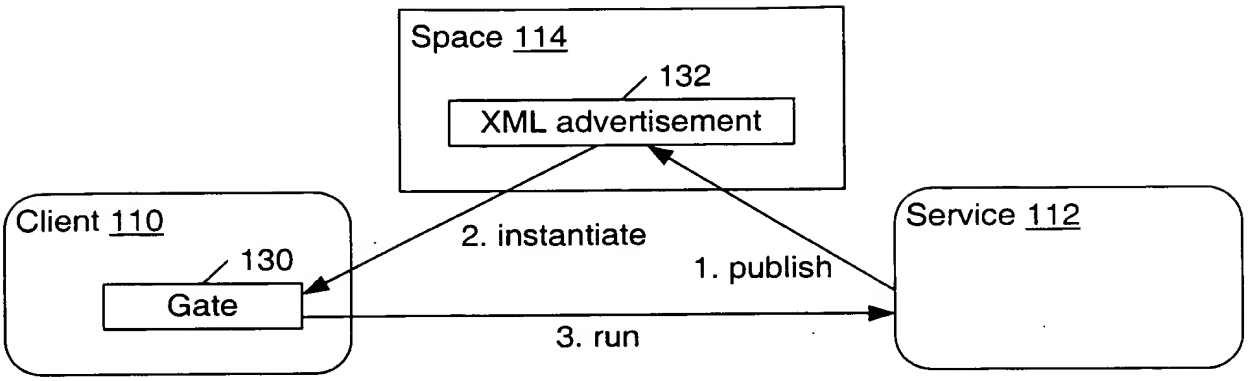


Fig. 8

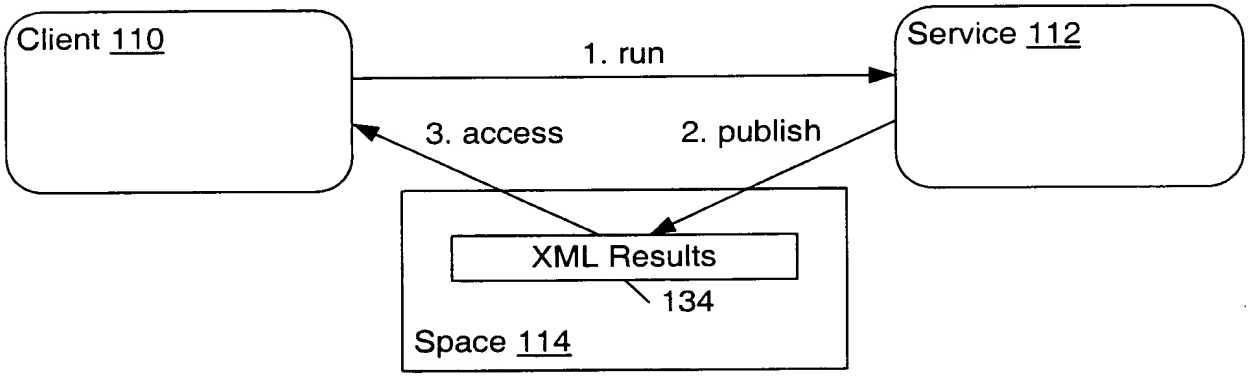


Fig. 9

Docket No. 200309-1

5060364.1 050300

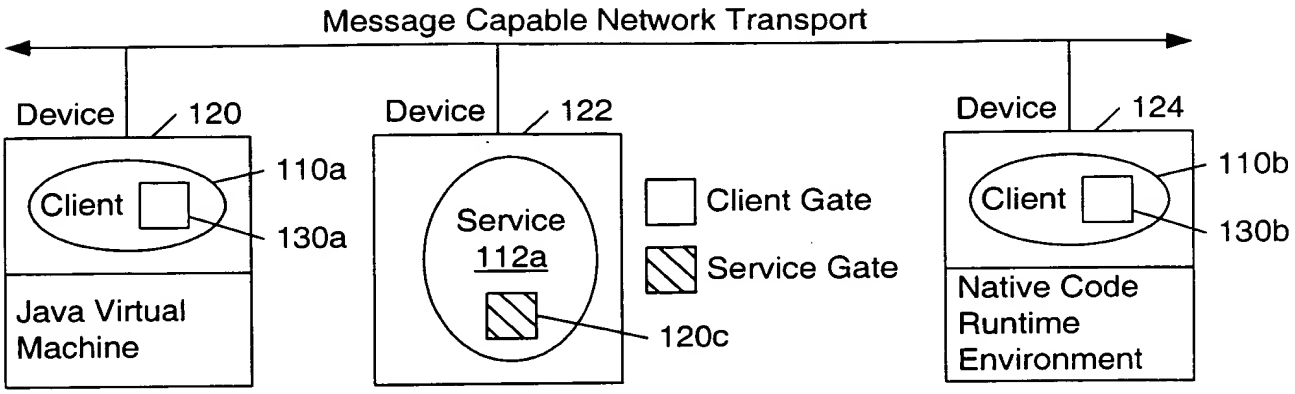


Fig. 10a

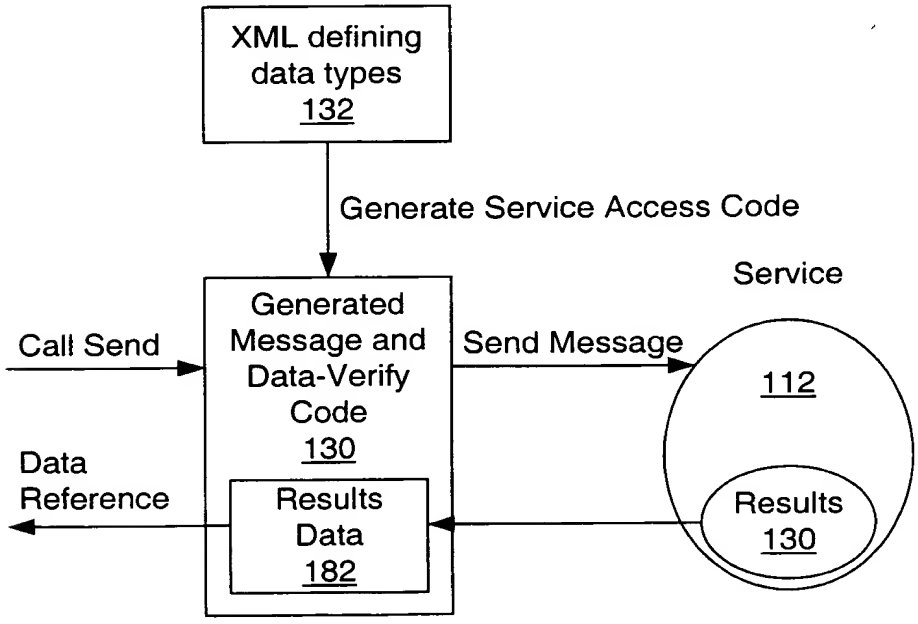


Fig. 10b

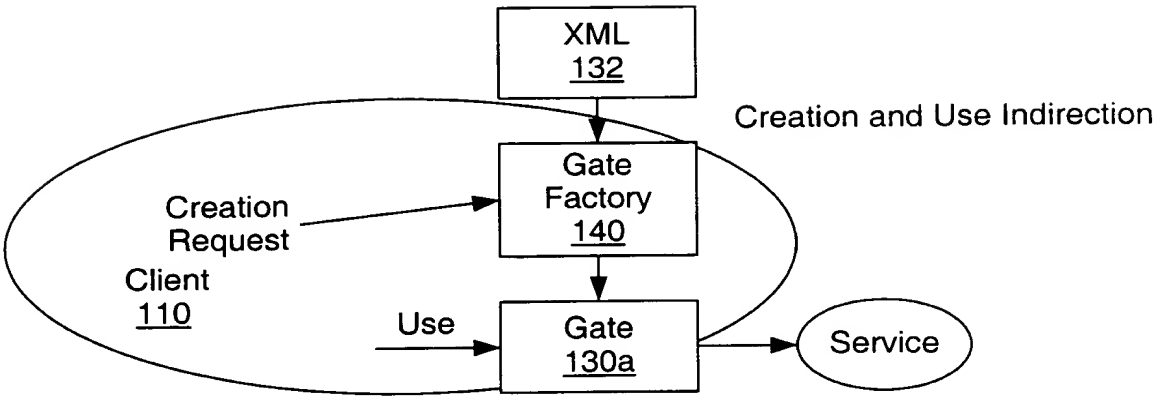


Fig. 11a

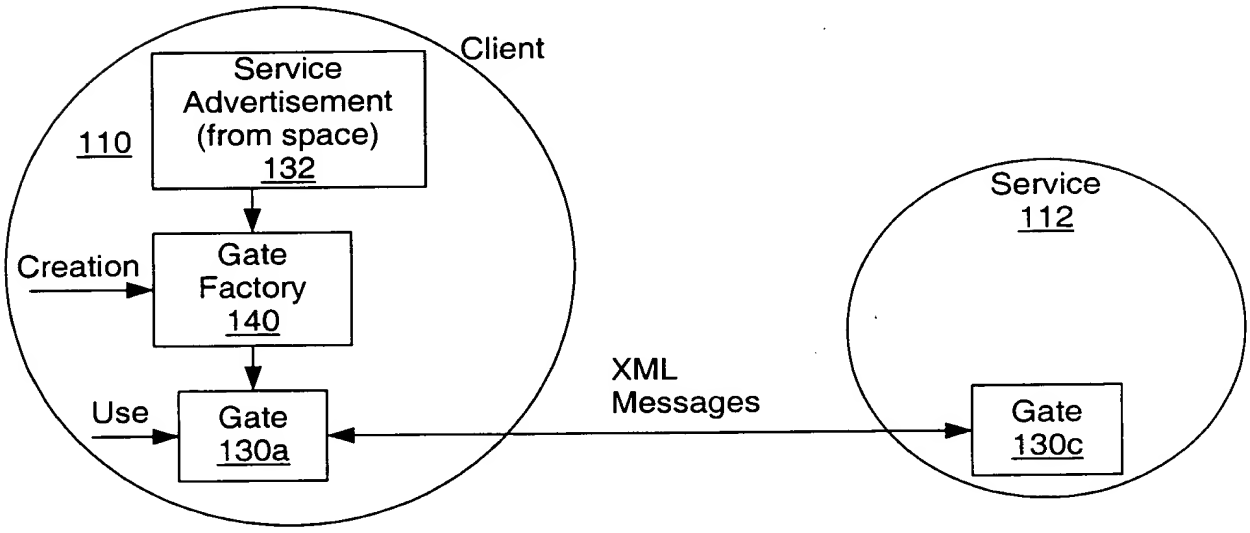


Fig. 11b

09596821 - 020500

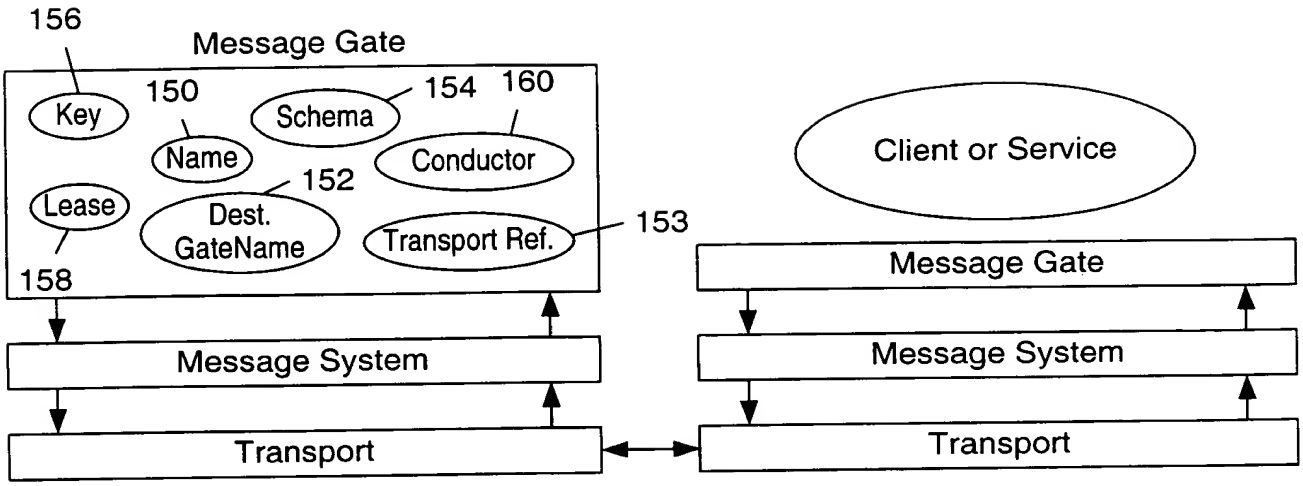


Fig. 12

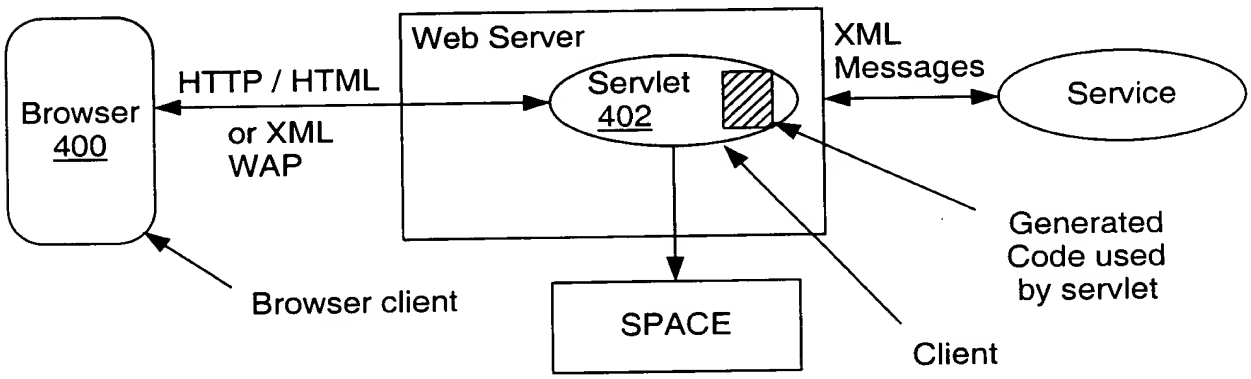


Fig. 13

Docket No. 50277-2000

DOCKET: 4950-6

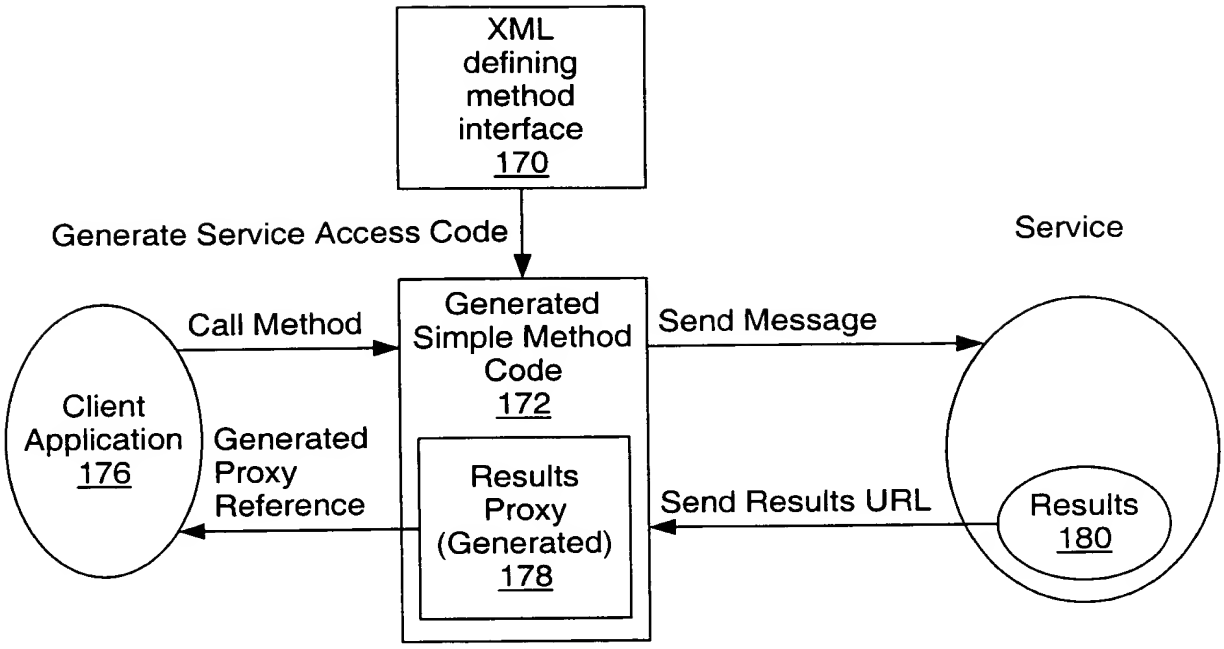


Fig. 14

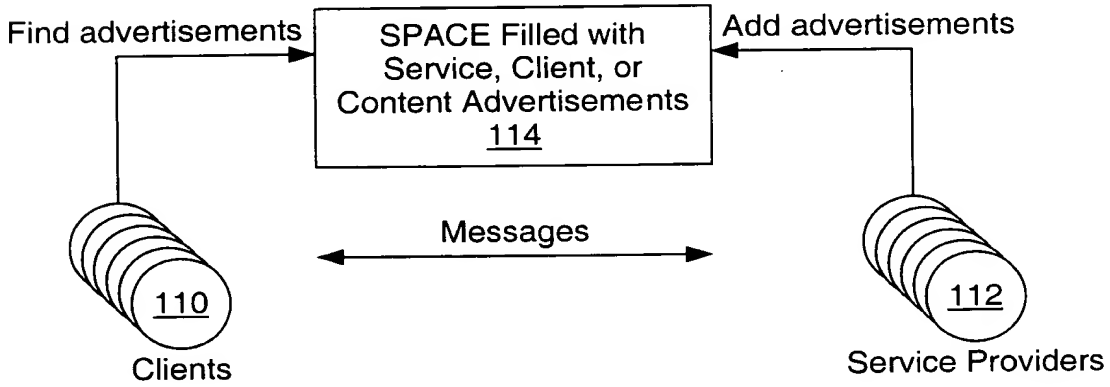


Fig. 15

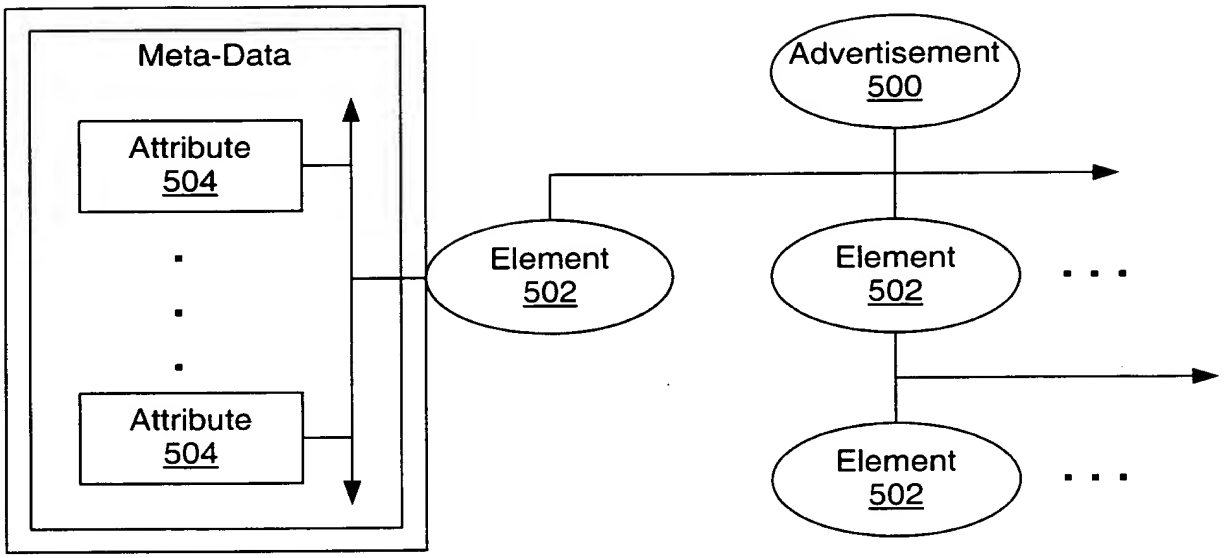

Meta-Data
Attribute
504
Attribute
504
Advertisement
500
Element
502
Element
502
Element
502

Fig. 16

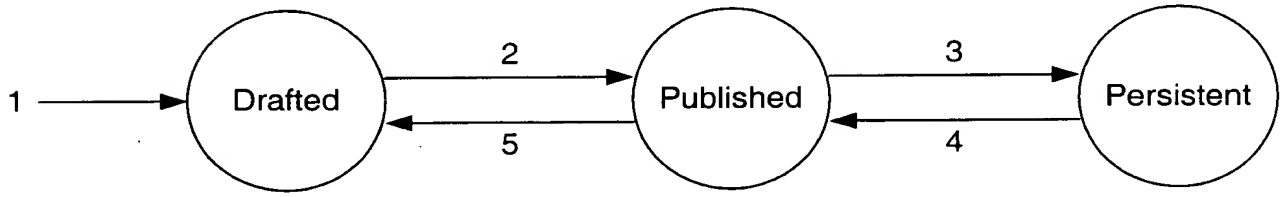

1
Drafted
2
5
Published
3
4
Persistent

Fig. 17

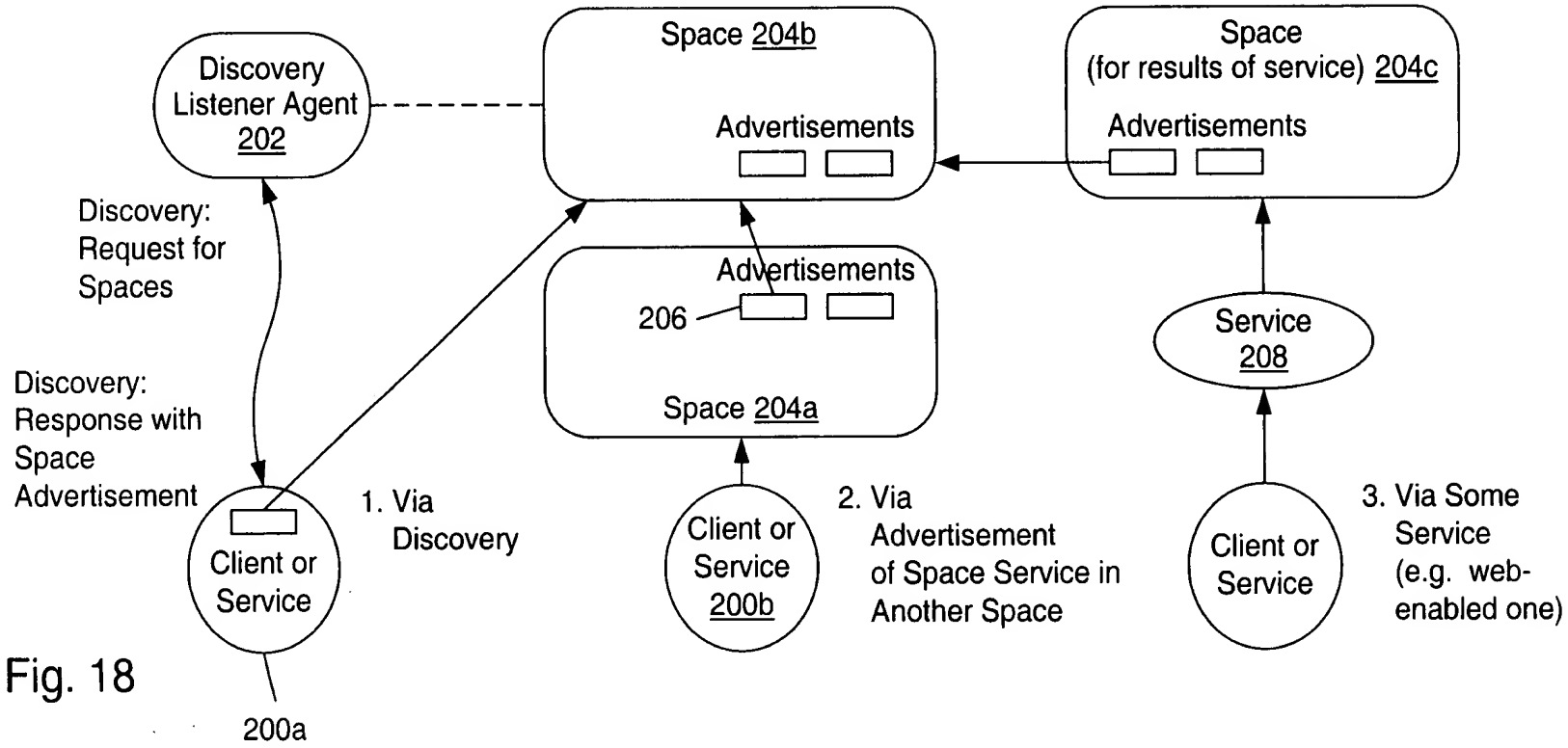

Discovery Listener Agent 202
Space 204b
Advertisements
Space (for results of service) 204c
Advertisements
Discovery: Request for Spaces
Advertisements
206
Space 204a
Service 208
Discovery: Response with Space Advertisement
Client or Service
1. Via Discovery
Client or Service 200b
2. Via Advertisement of Space Service in Another Space
Client or Service
3. Via Some Service (e.g. web-enabled one)
200a

Fig. 18

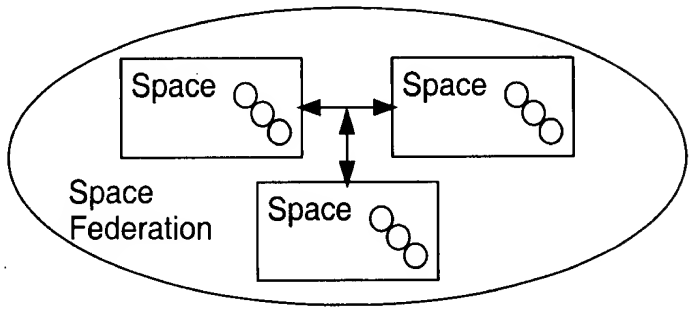

Space
Space
Space Federation
Space

Fig. 19

0960-1783960

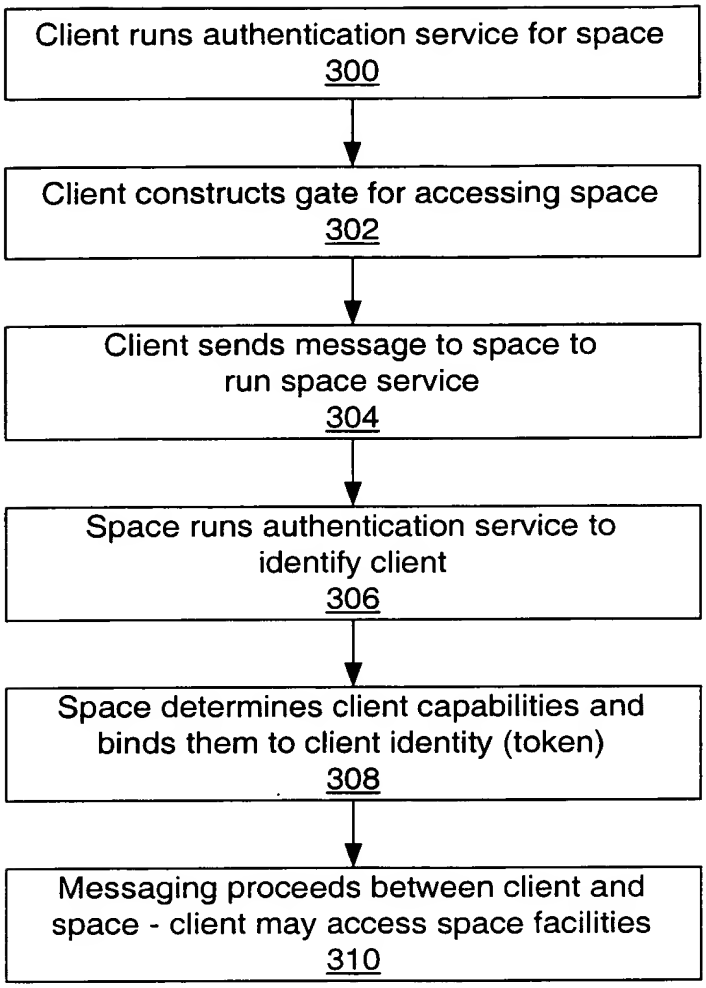


Fig. 20

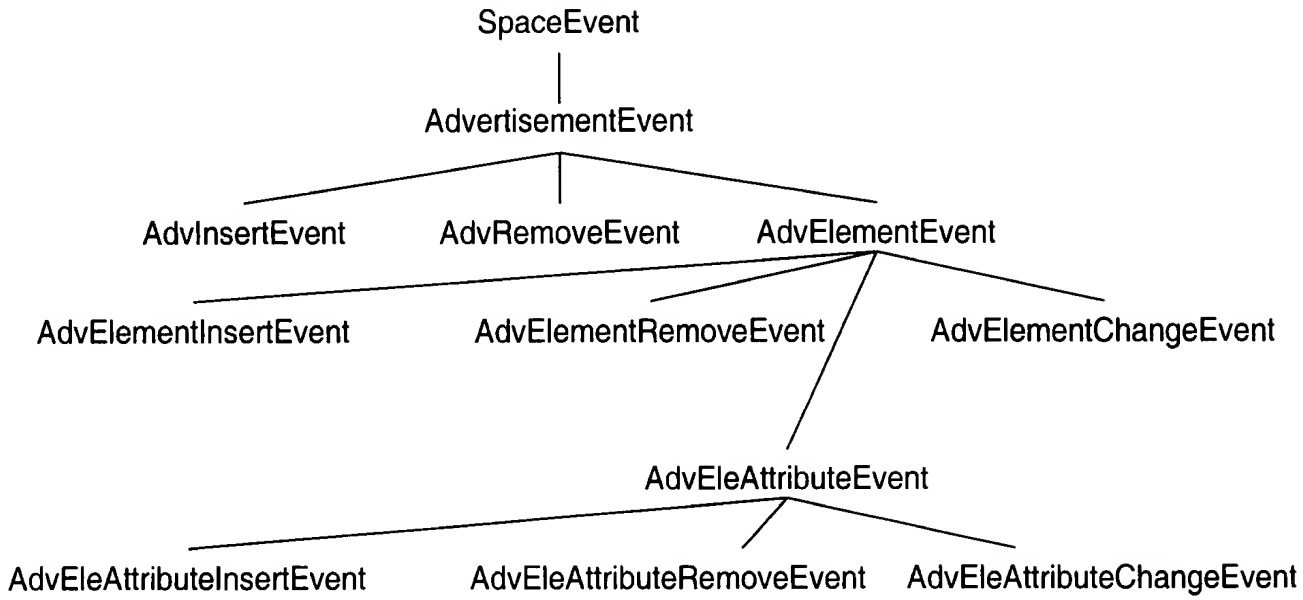

SpaceEvent
AdvertisementEvent
AdvInsertEvent
AdvRemoveEvent
AdvElementEvent
AdvElementInsertEvent
AdvElementRemoveEvent
AdvElementChangeEvent
AdvEleAttributeEvent
AdvEleAttributeInsertEvent
AdvEleAttributeRemoveEvent
AdvEleAttributeChangeEvent

Fig. 21

Docket No. 4030-4

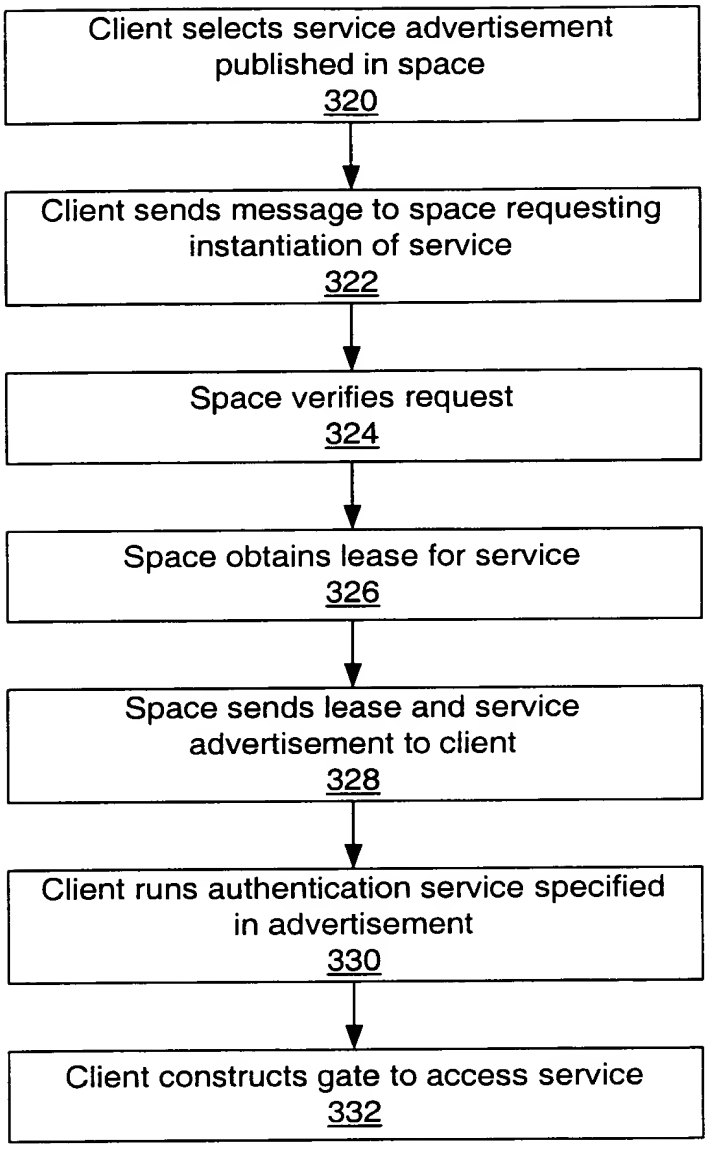


Fig. 22

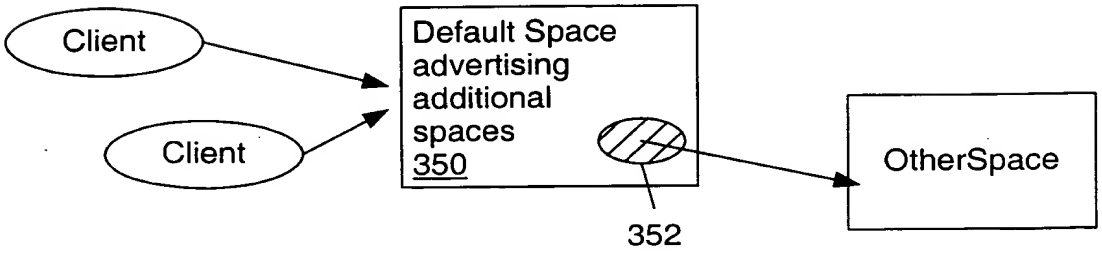


Fig. 23

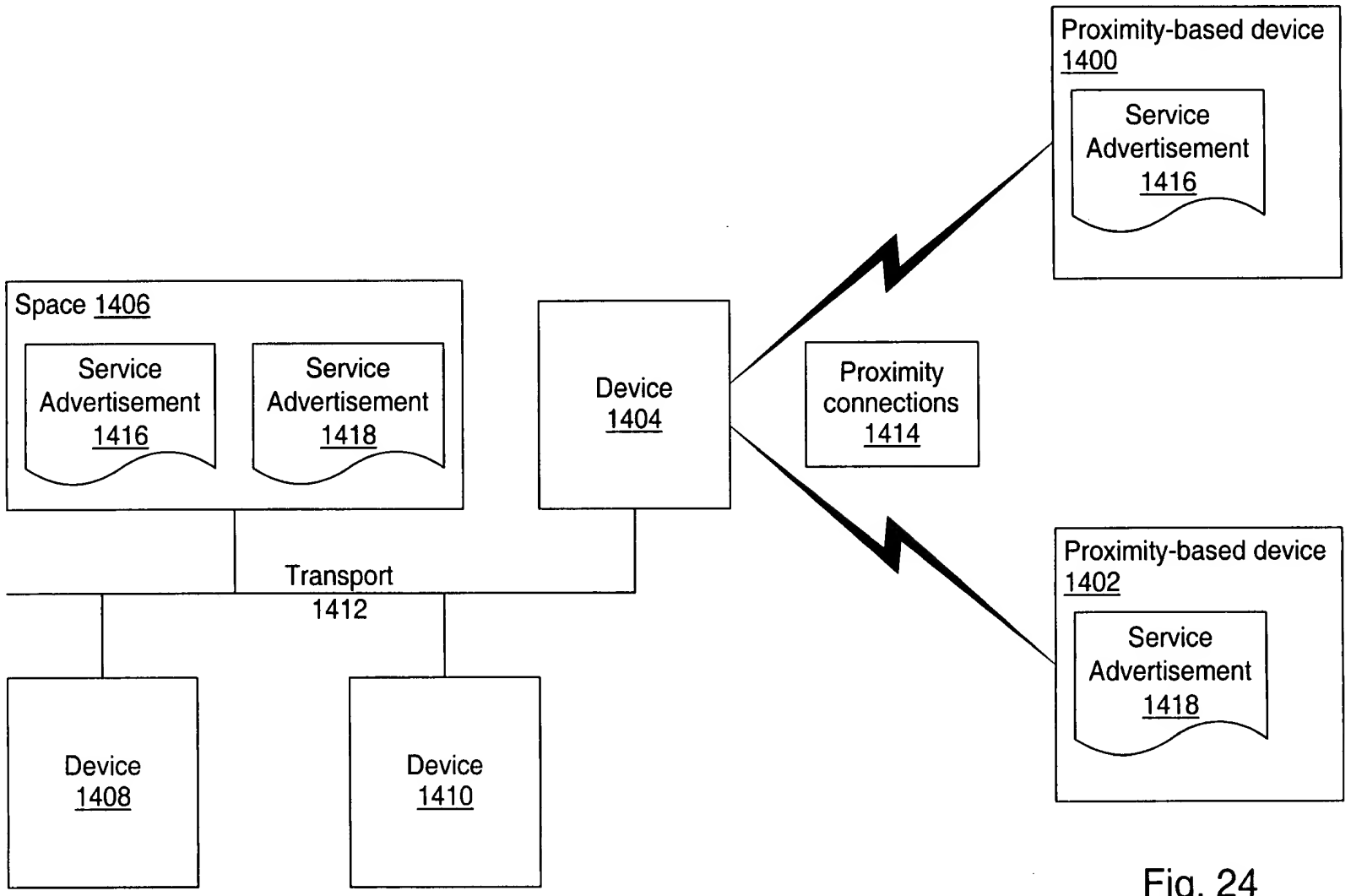

Proximity-based device
1400
Service
Advertisement
1416
Space 1406
Service
Advertisement
1416
Service
Advertisement
1418
Device
1404
Proximity
connections
1414
Transport
1412
Proximity-based device
1402
Service
Advertisement
1418
Device
1408
Device
1410

Fig. 24

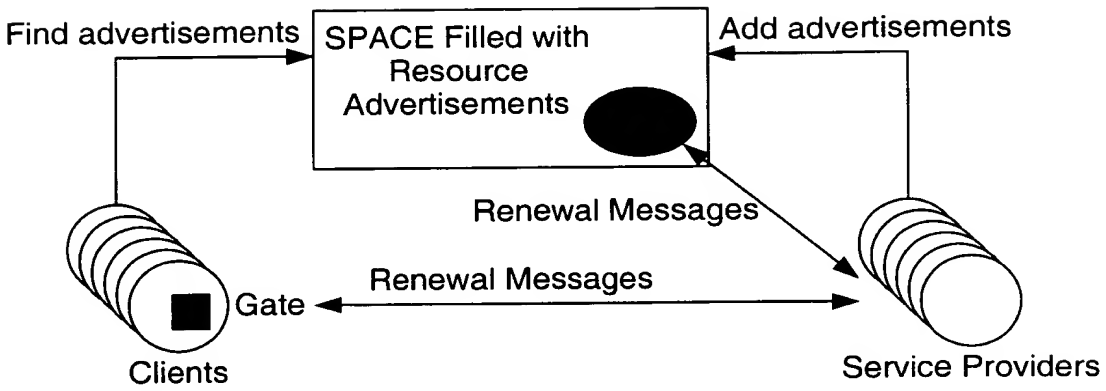


Fig. 25

DOCKET - 84369450

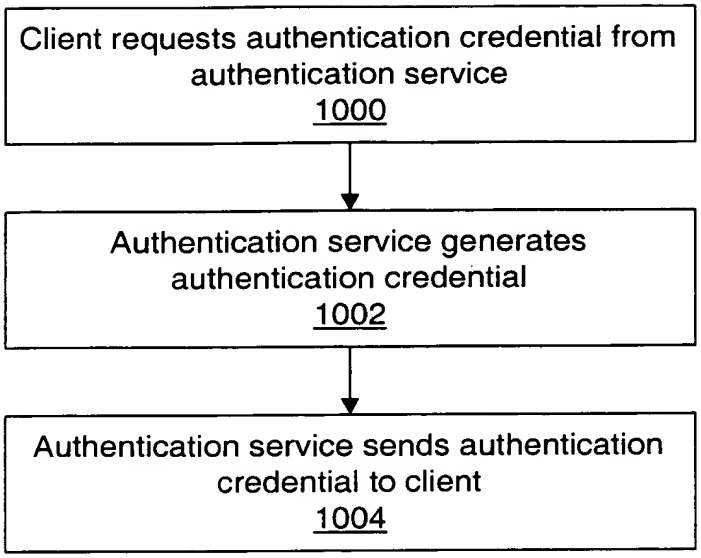


FIG. 26a

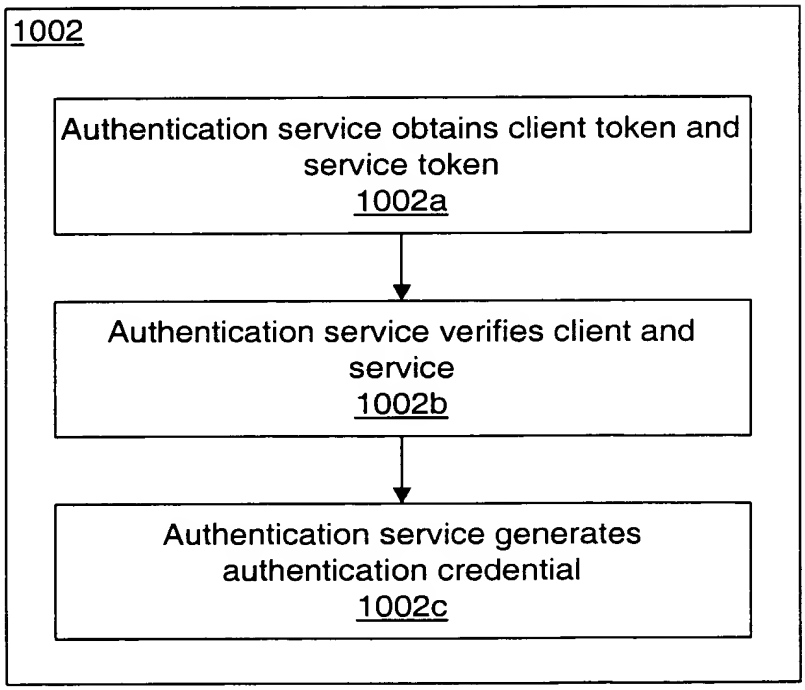


FIG. 26b

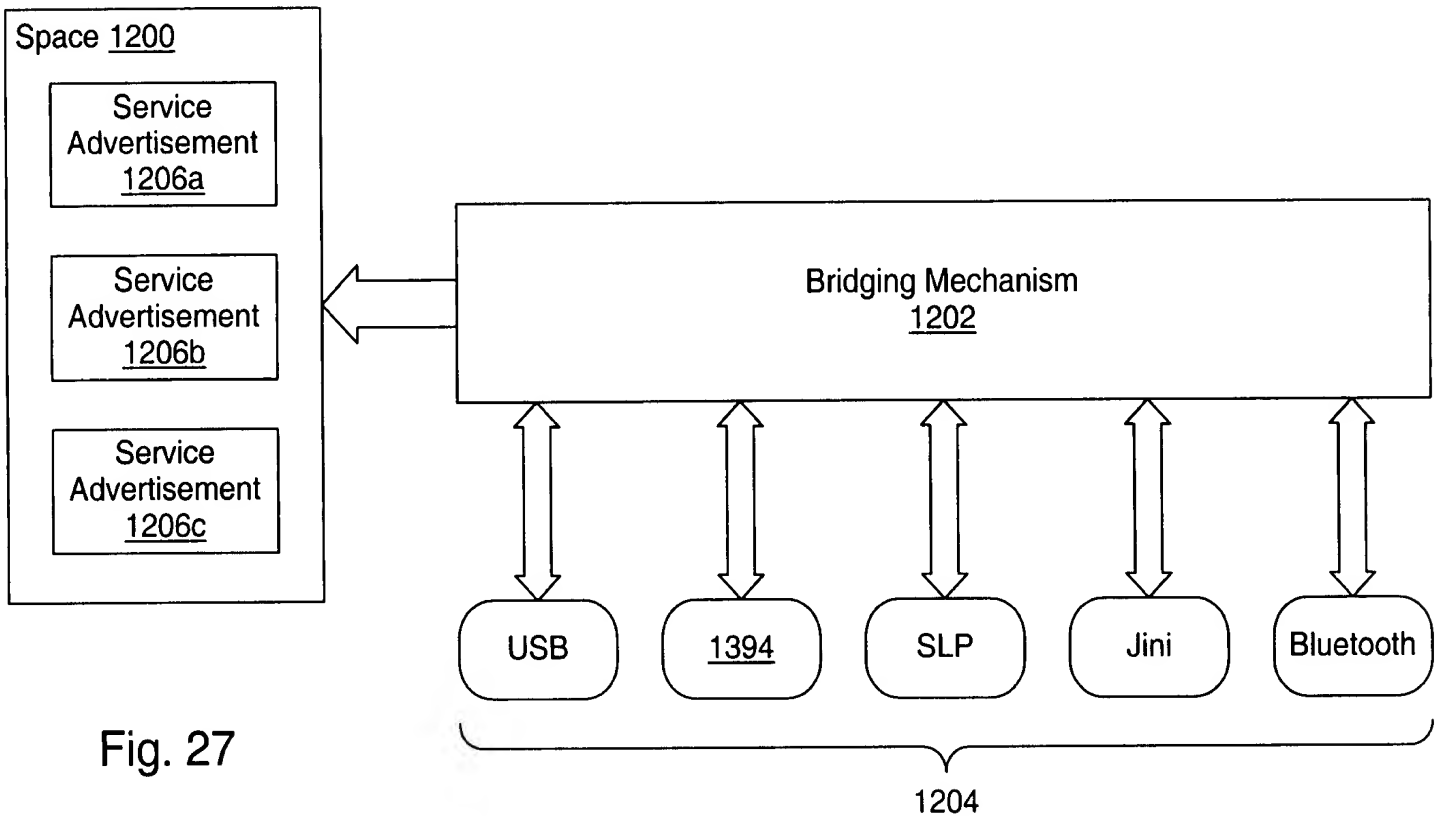

Space 1200
Service Advertisement 1206a
Service Advertisement 1206b
Service Advertisement 1206c
Bridging Mechanism 1202
USB
1394
SLP
Jini
Bluetooth
1204

Fig. 27

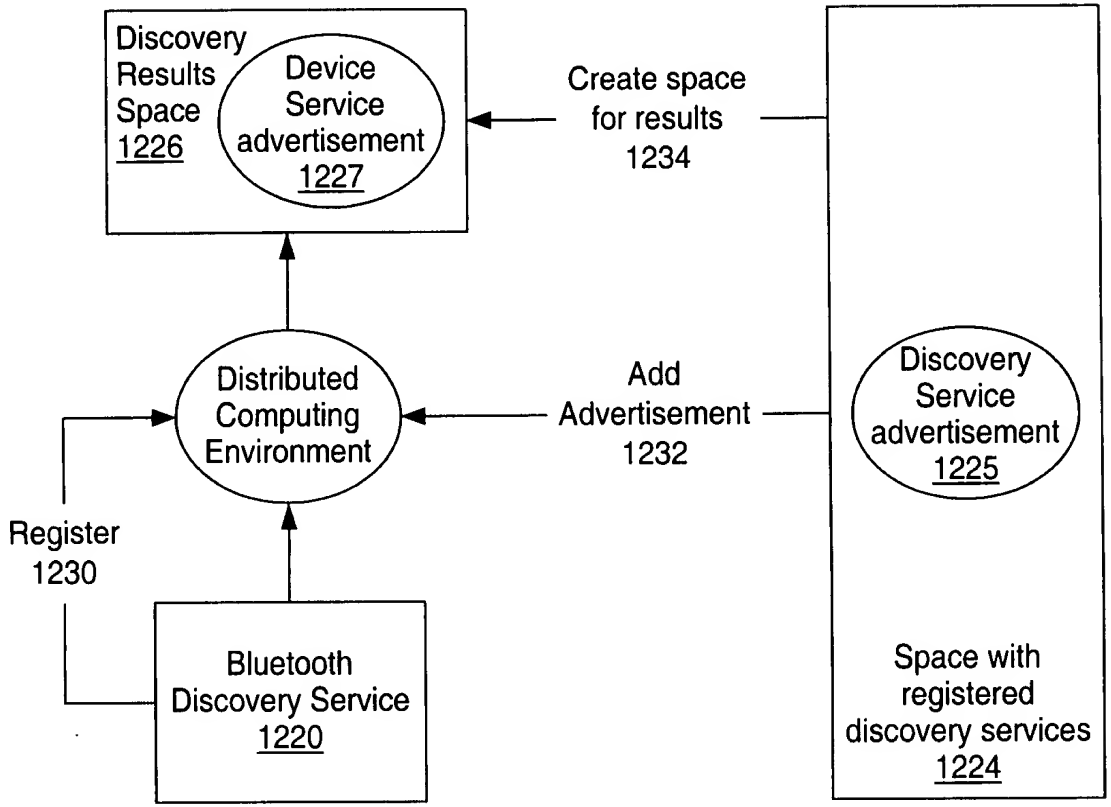
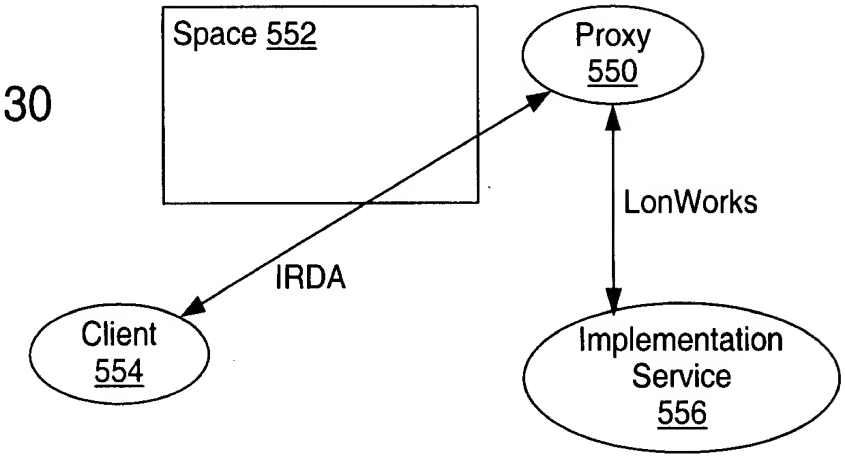

Discovery
Results
Space
1226
Device
Service
advertisement
1227
Create space
for results
1234
Distributed
Computing
Environment
Add
Advertisement
1232
Discovery
Service
advertisement
1225
Register
1230
Bluetooth
Discovery Service
1220
Space with
registered
discovery services
1224

Fig. 28

006TOT"T8926960

Fig. 30



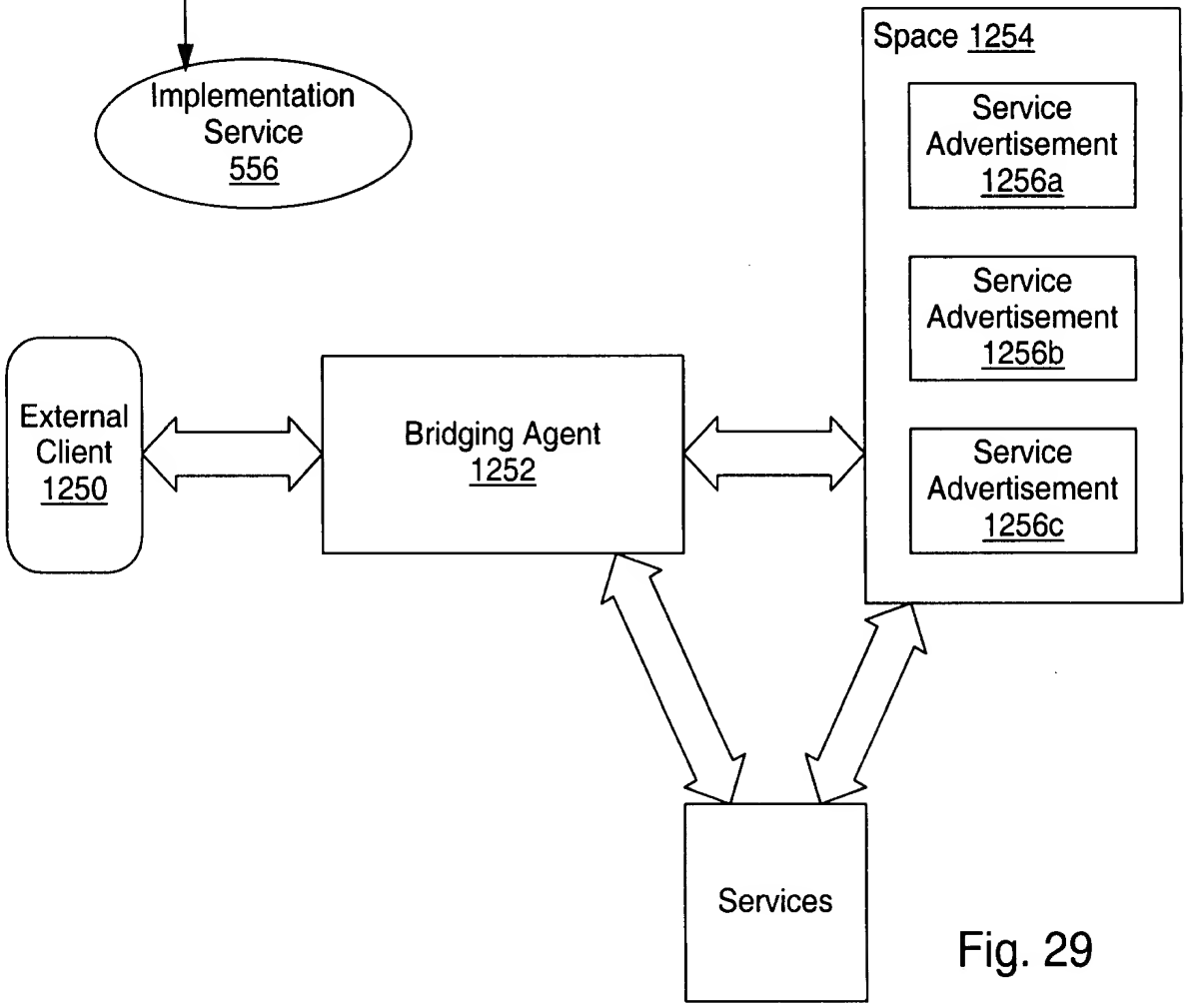


Fig. 29

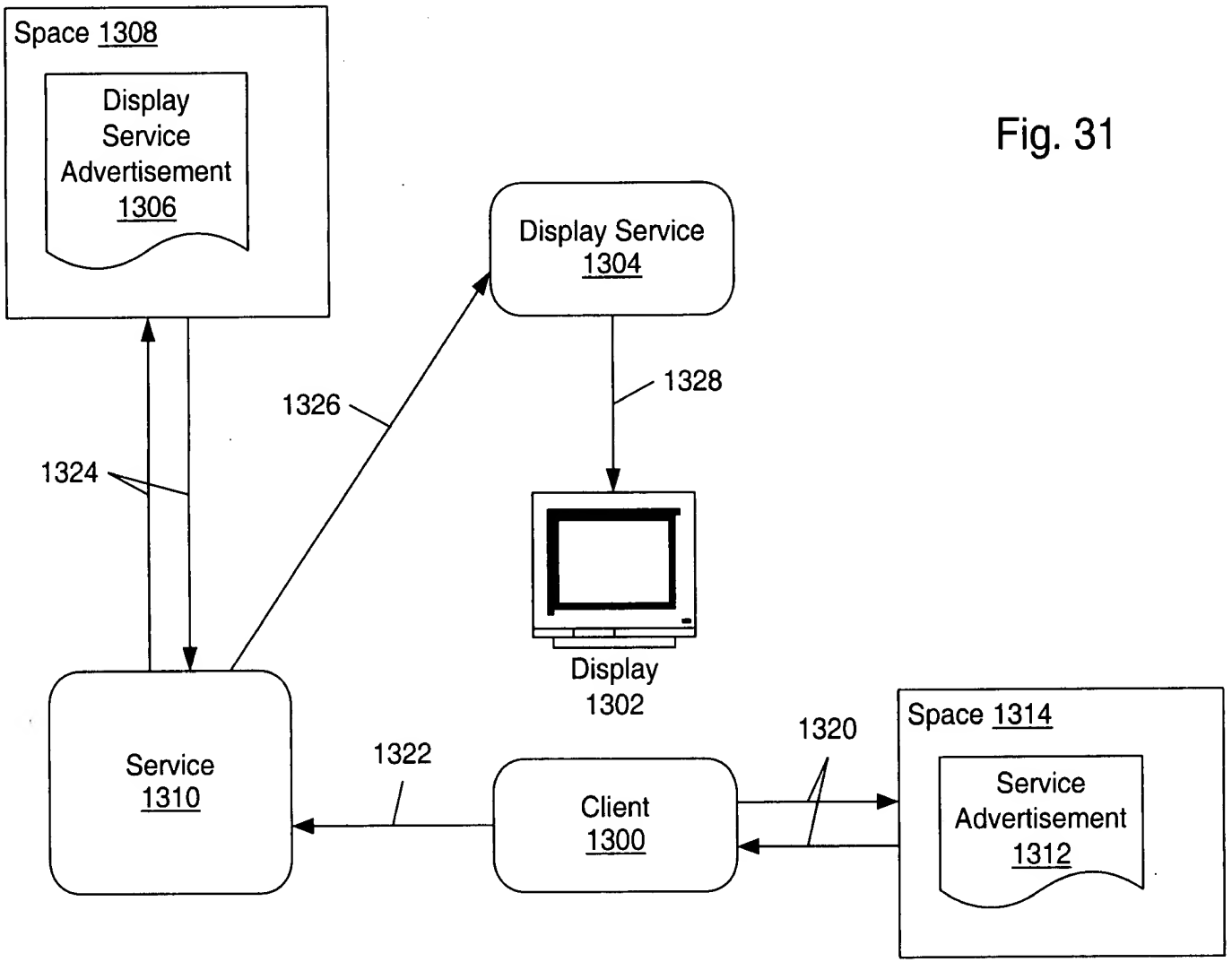

Space 1308
Display Service Advertisement 1306
Display Service 1304
1326
1328
1324
Display 1302
Service 1310
1322
Client 1300
1320
Space 1314
Service Advertisement 1312

Fig. 31

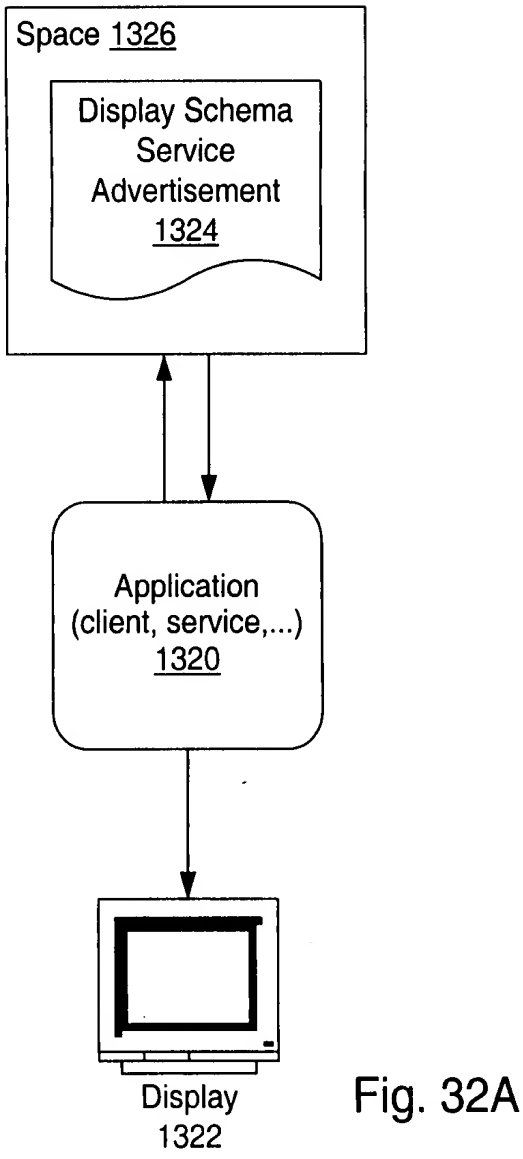


Fig. 32A

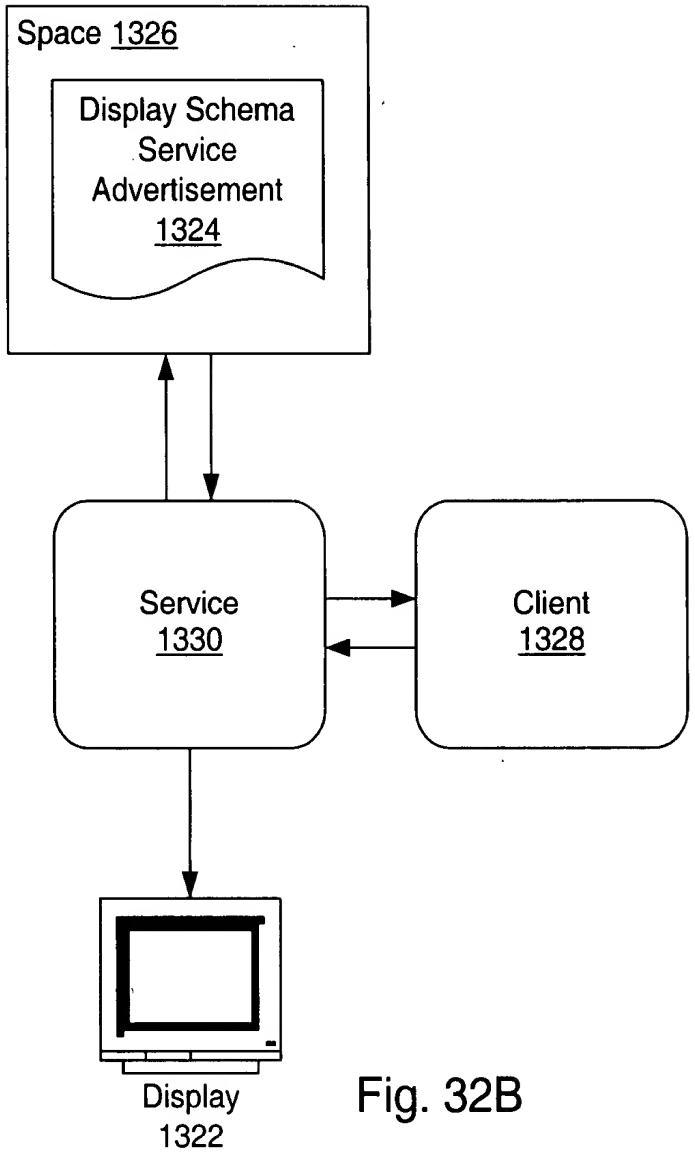


Fig. 32B

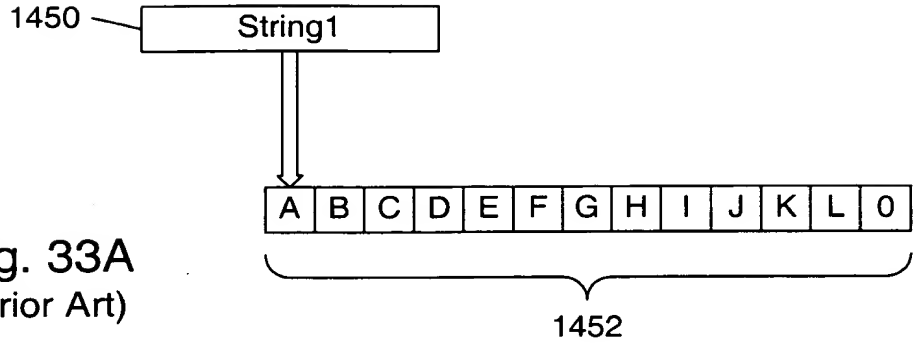


Fig. 33A
(Prior Art)

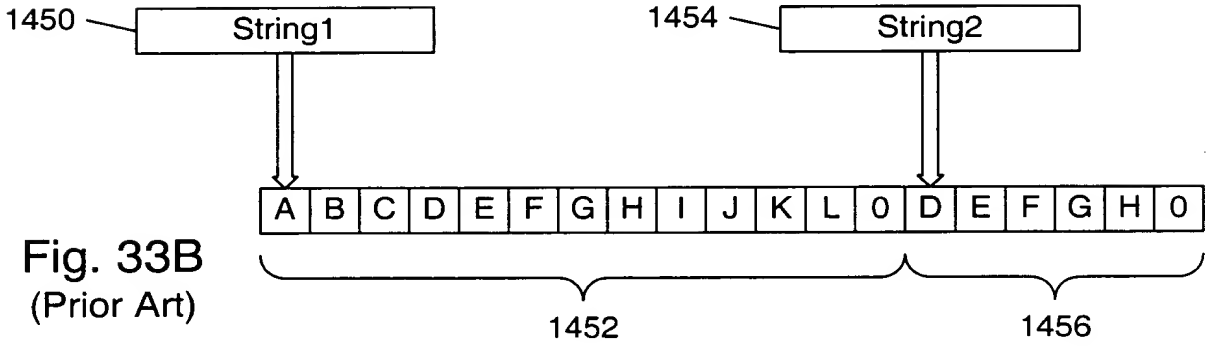


Fig. 33B
(Prior Art)

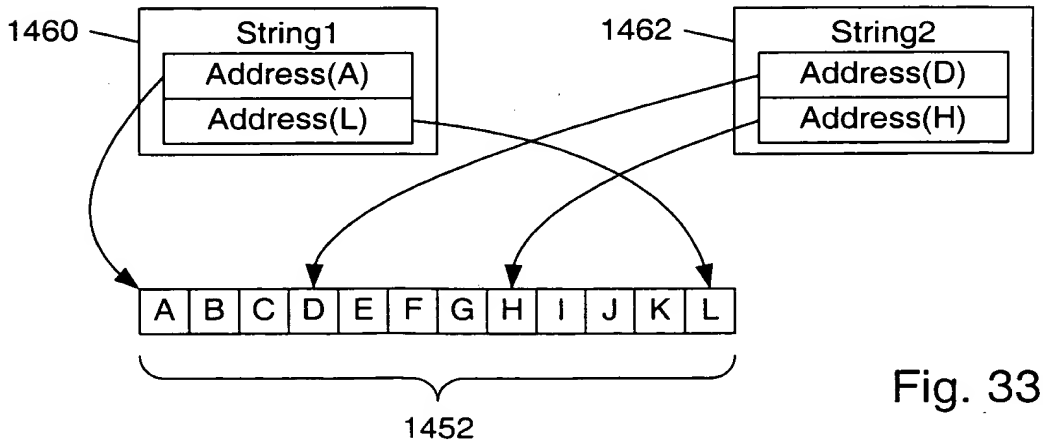


Fig. 33C

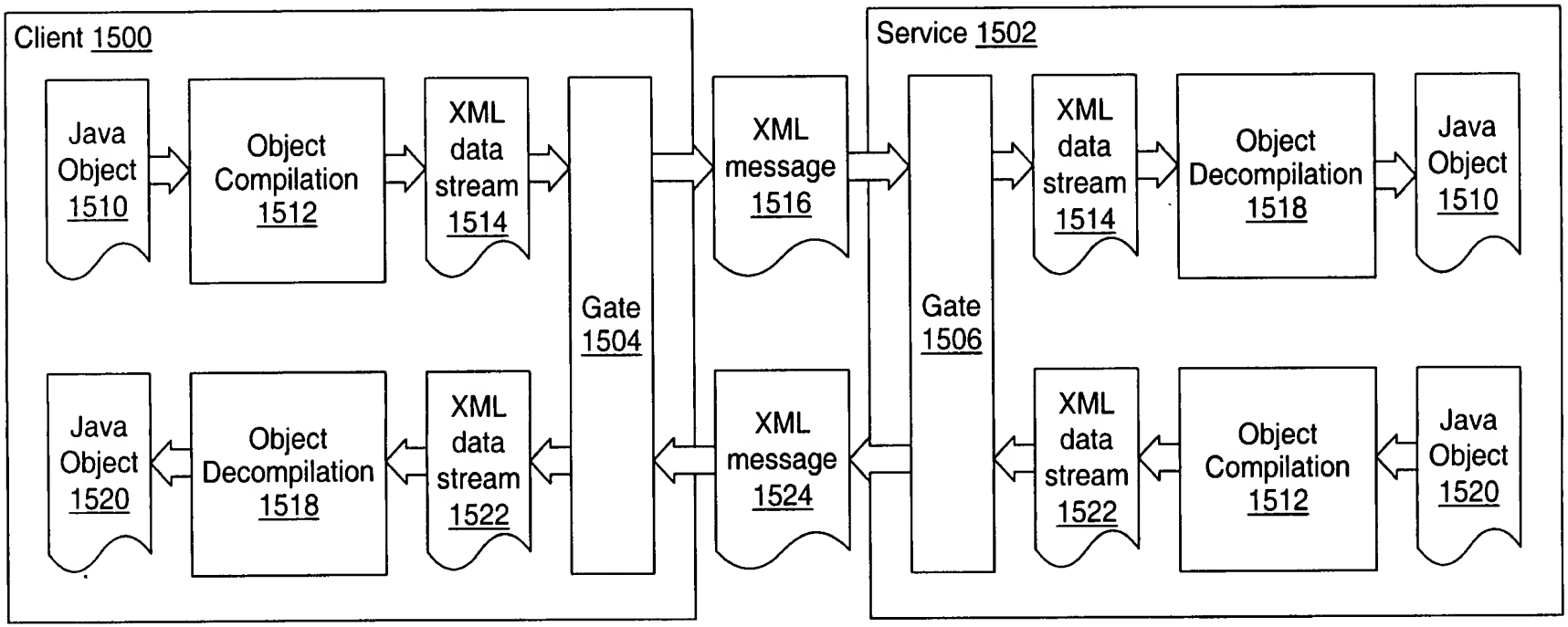

Client 1500
Java Object 1510
Object Compilation 1512
XML data stream 1514
Gate 1504
XML message 1516
Service 1502
Gate 1506
XML data stream 1514
Object Decompilation 1518
Java Object 1510
Java Object 1520
Object Decompilation 1518
XML data stream 1522
XML message 1524
XML data stream 1522
Object Compilation 1512
Java Object 1520

Fig. 34

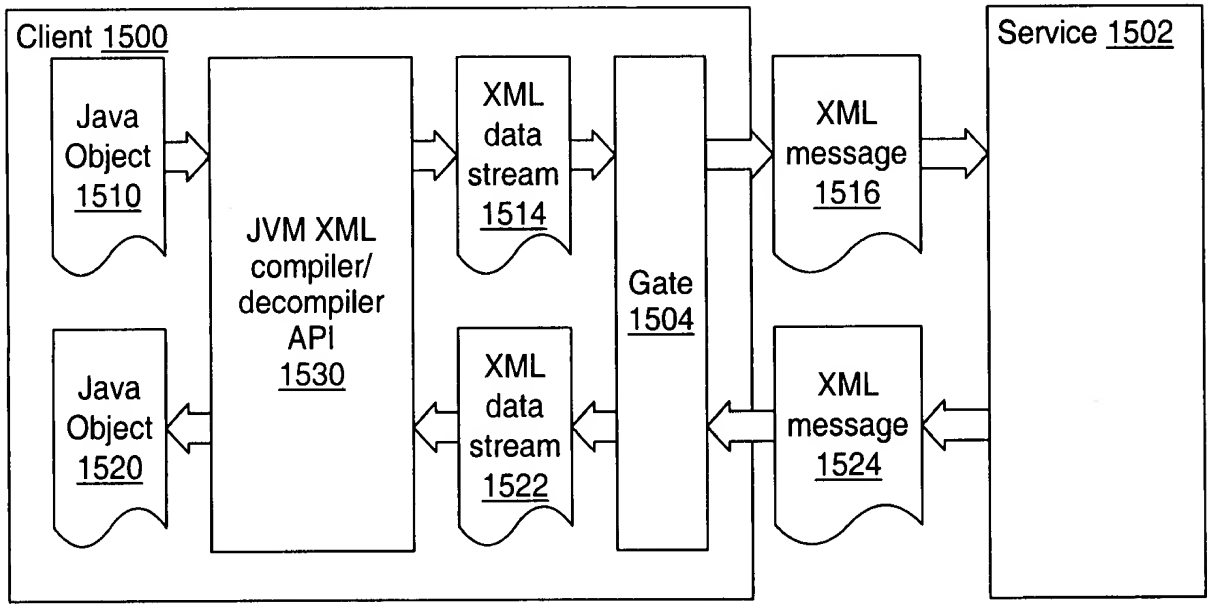


Fig. 35a

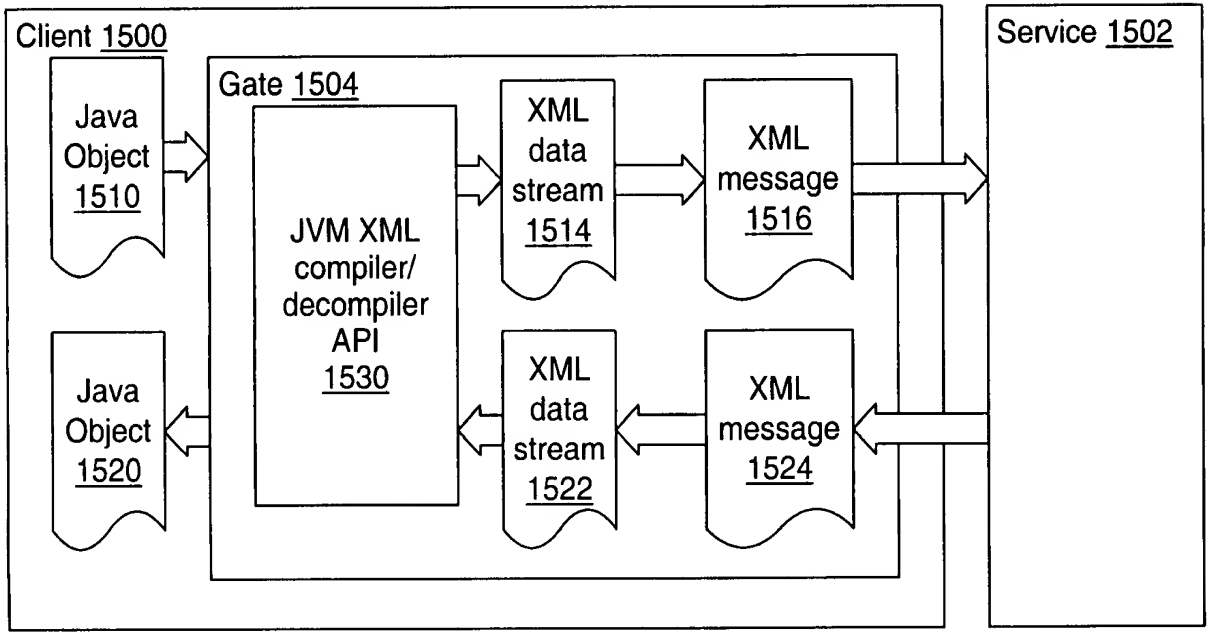


Fig. 35b

006701 T8966960

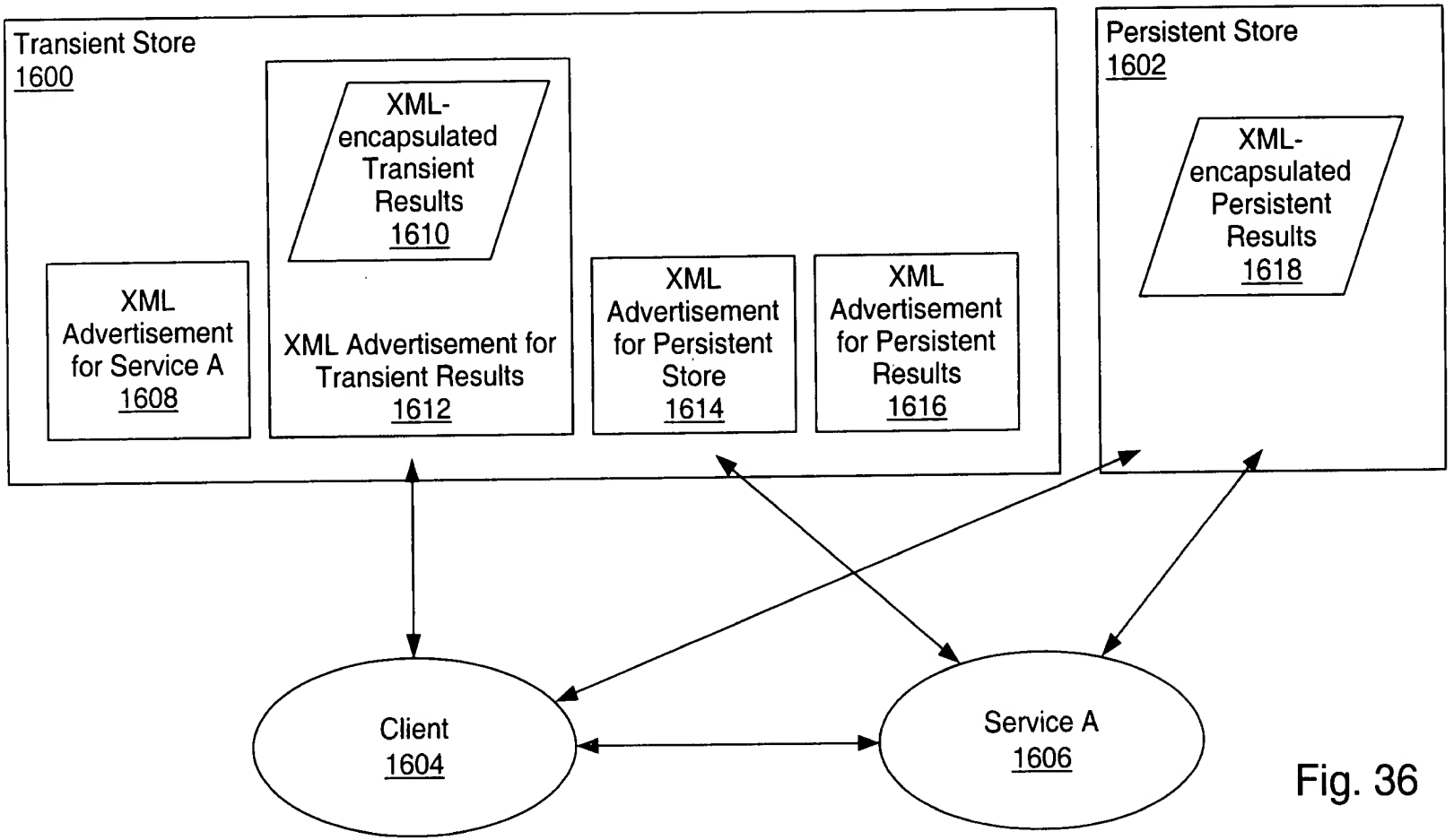


Fig. 36

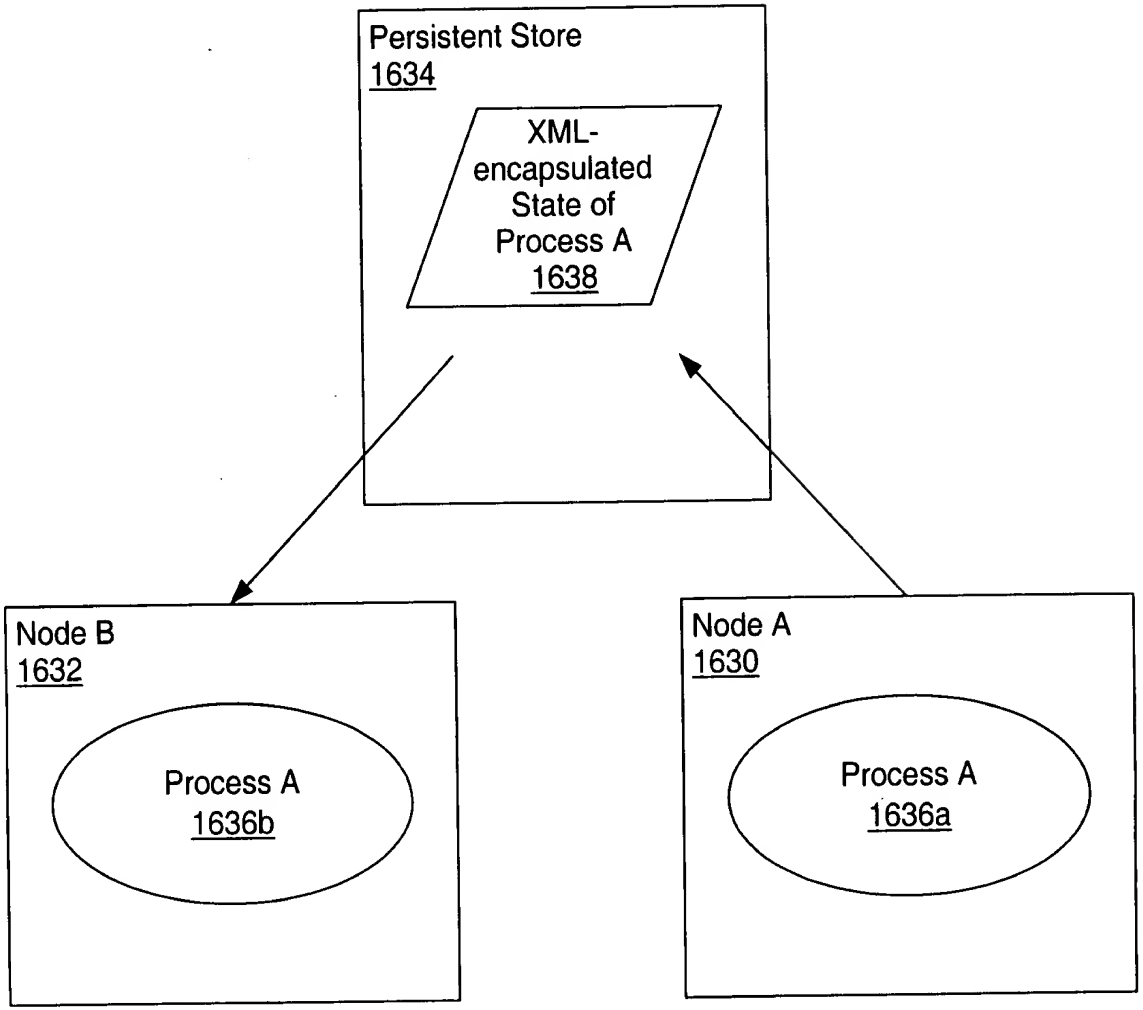

Persistent Store
1634
XML-encapsulated State of Process A
1638
Node B
1632
Process A
1636b
Node A
1630
Process A
1636a

Fig. 37

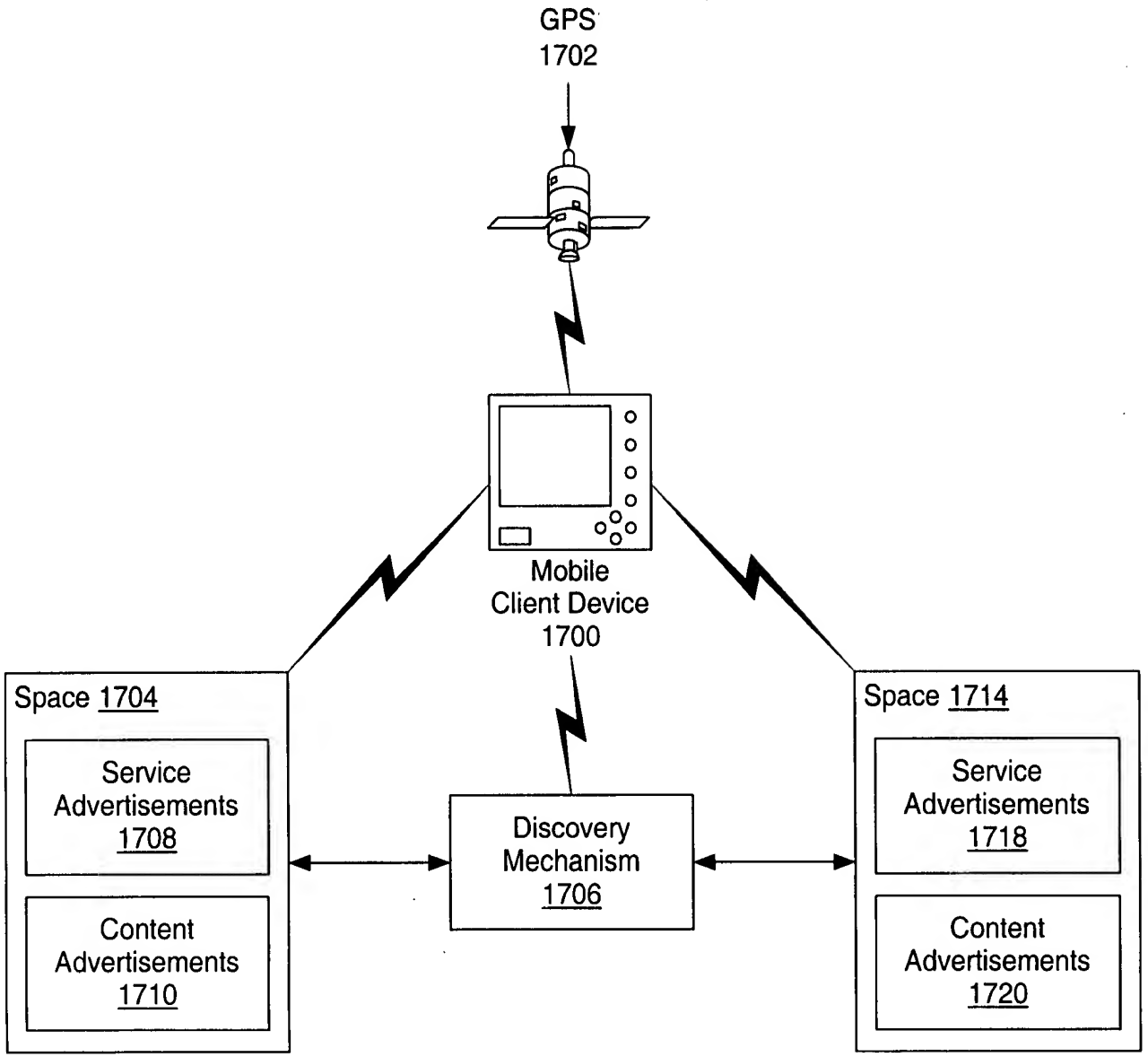

GPS
1702
Mobile
Client Device
1700
Space 1704
Service
Advertisements
1708
Content
Advertisements
1710
Discovery
Mechanism
1706
Space 1714
Service
Advertisements
1718
Content
Advertisements
1720

Fig. 38

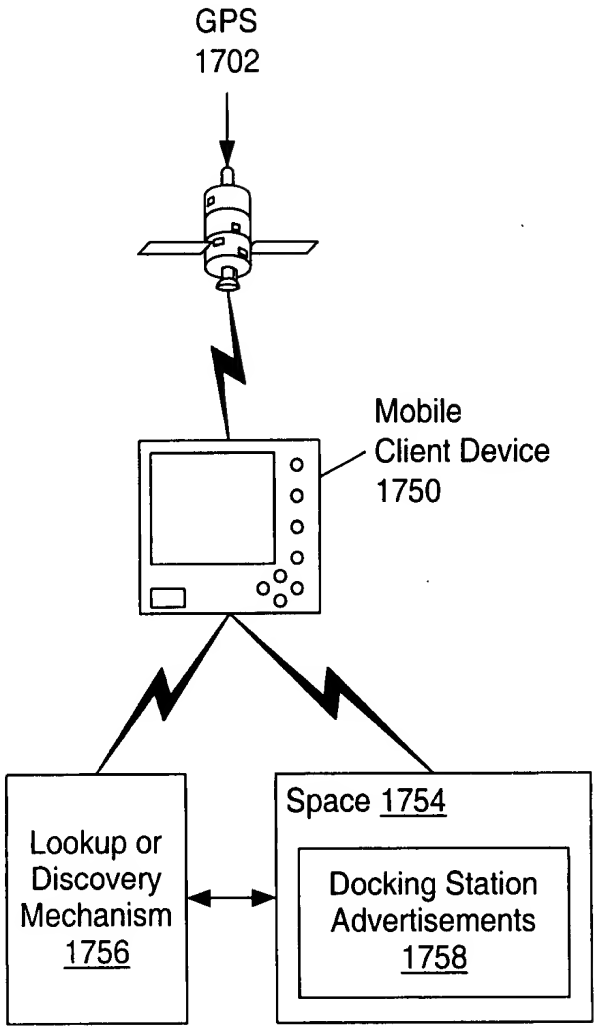


Fig. 39a

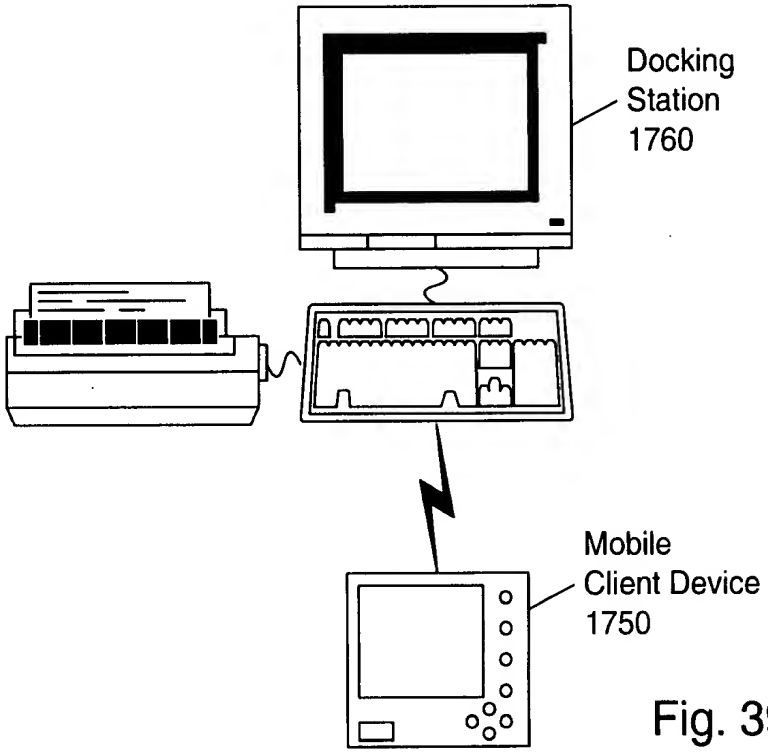


Fig. 39b

006TOT" T89E696D

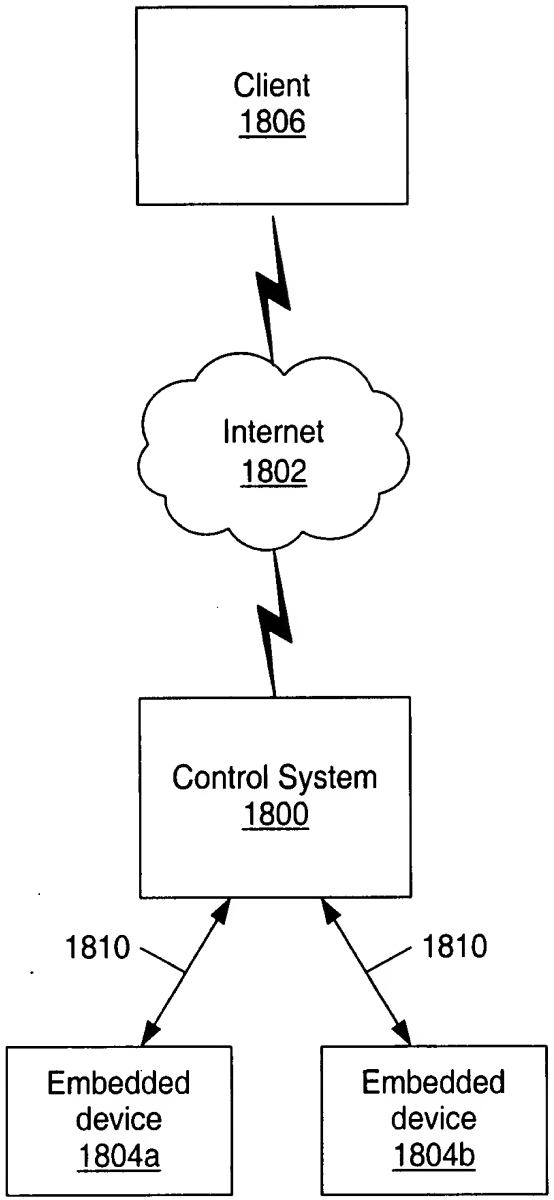


Fig. 40a

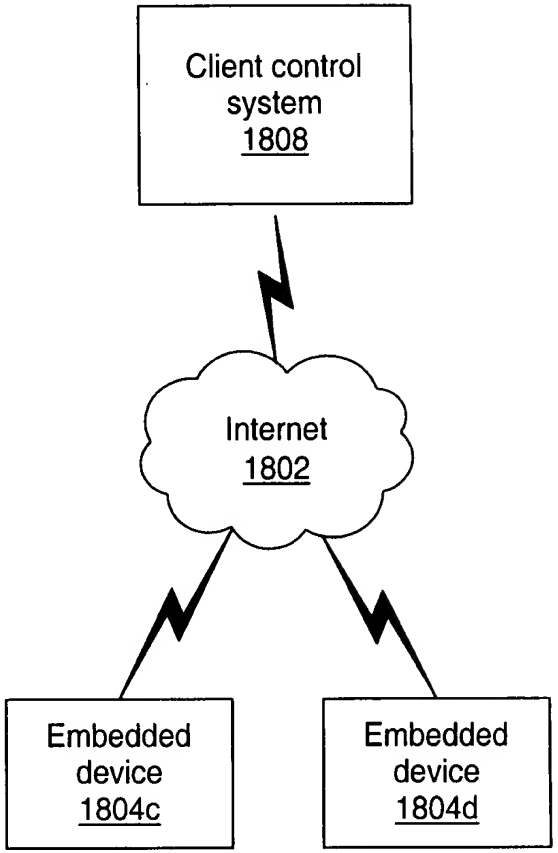


Fig. 40b

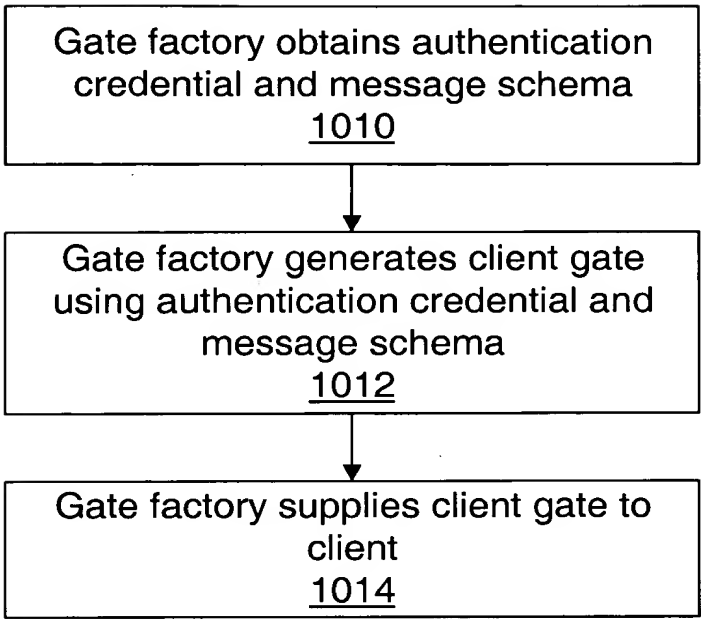


FIG. 41

0605371.00500

0605704.0360

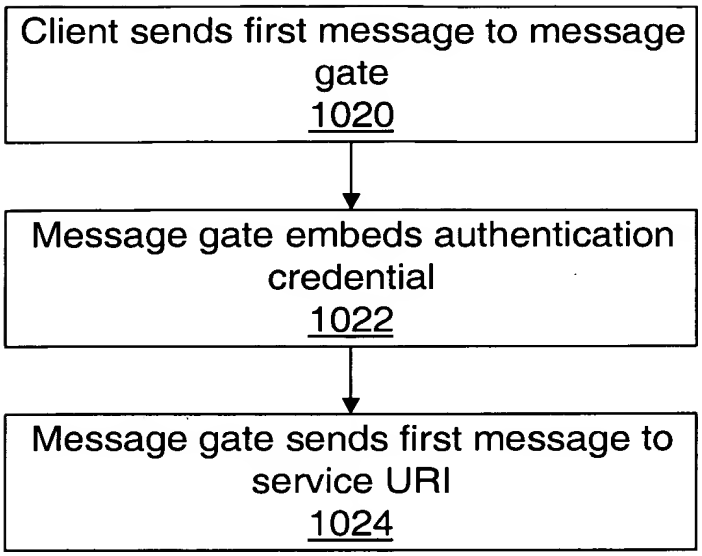


FIG. 42a

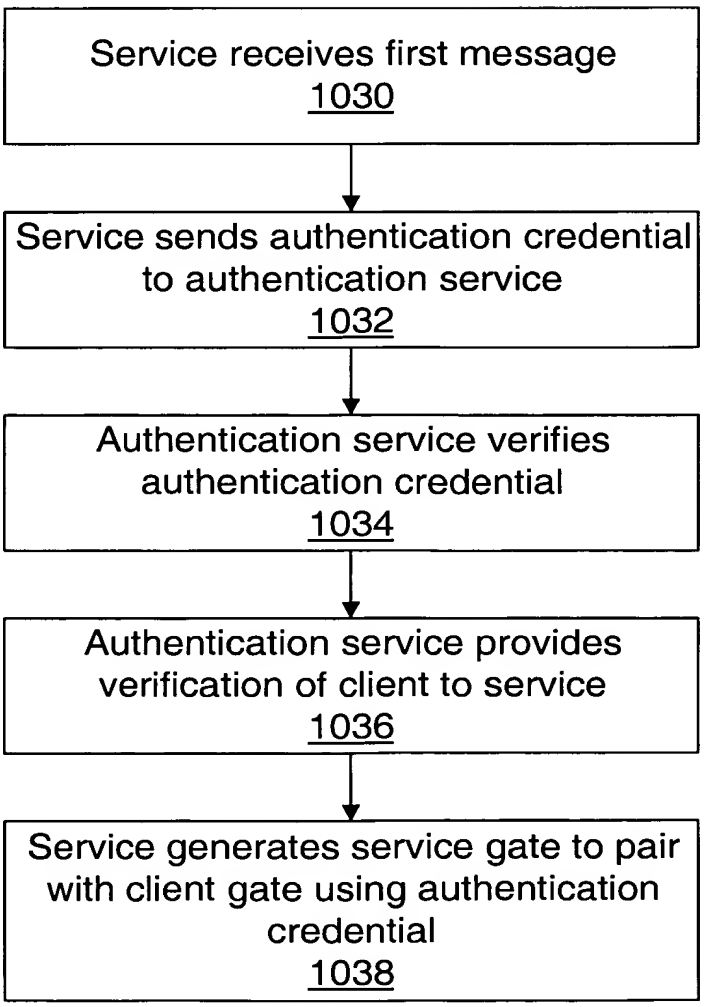


FIG. 42b

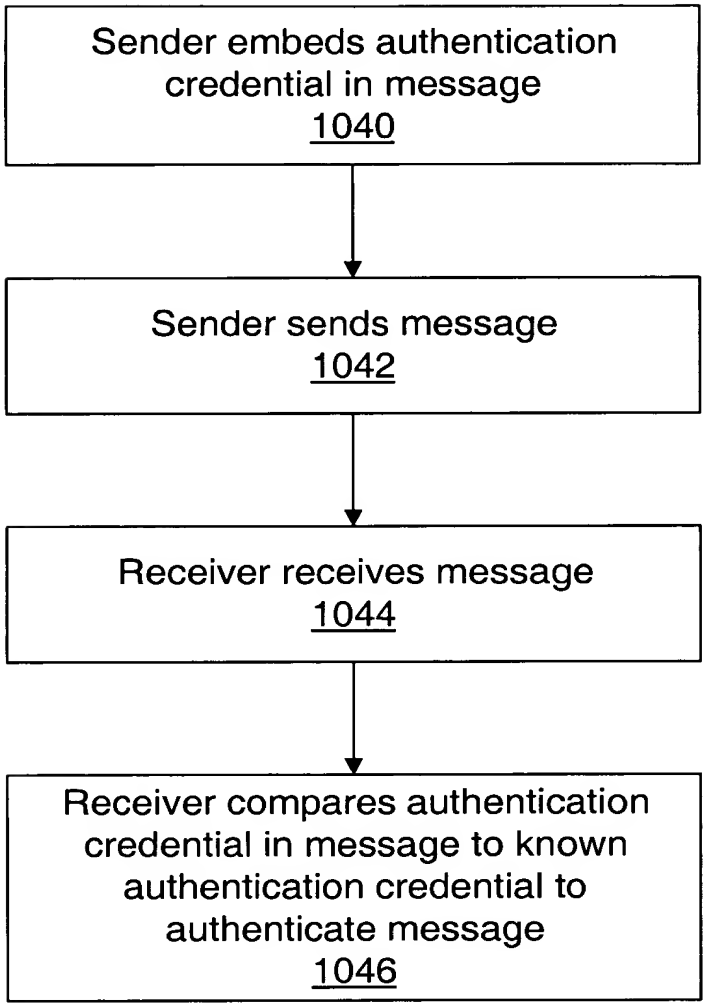

Sender embeds authentication credential in message
1040
Sender sends message
1042
Receiver receives message
1044
Receiver compares authentication credential in message to known authentication credential to authenticate message
1046

FIG. 42c

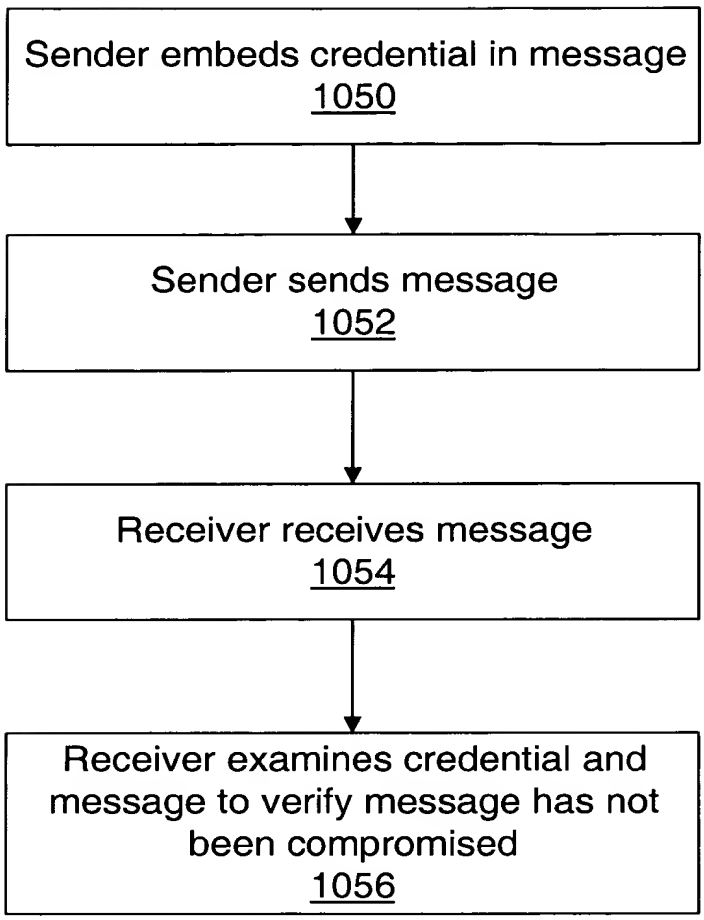

Sender embeds credential in message
1050
Sender sends message
1052
Receiver receives message
1054
Receiver examines credential and message to verify message has not been compromised
1056

FIG. 43

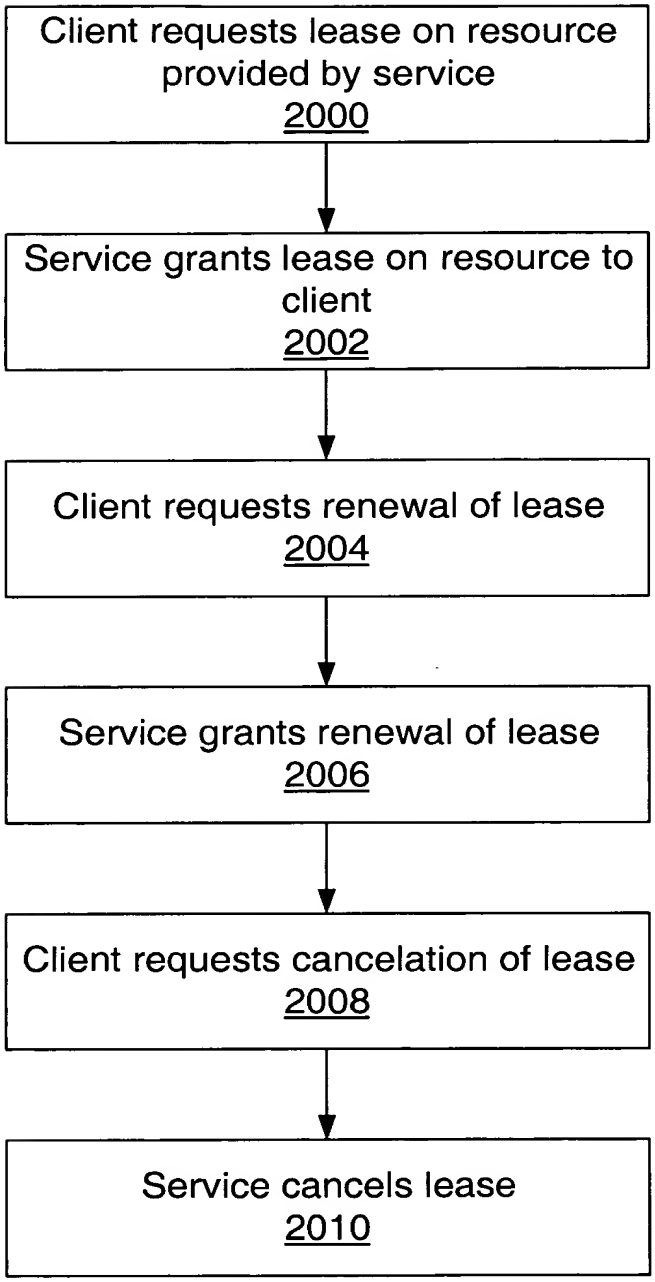

Client requests lease on resource provided by service
2000
Service grants lease on resource to client
2002
Client requests renewal of lease
2004
Service grants renewal of lease
2006
Client requests cancelation of lease
2008
Service cancels lease
2010

FIG. 44

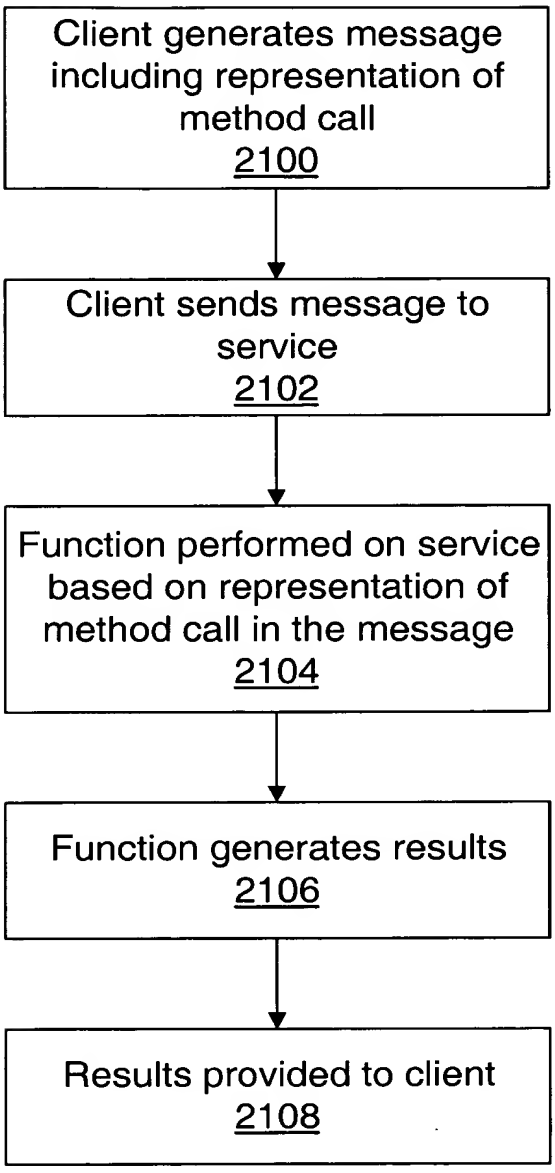


Figure 45a

0605384.0004

0960-T8956D

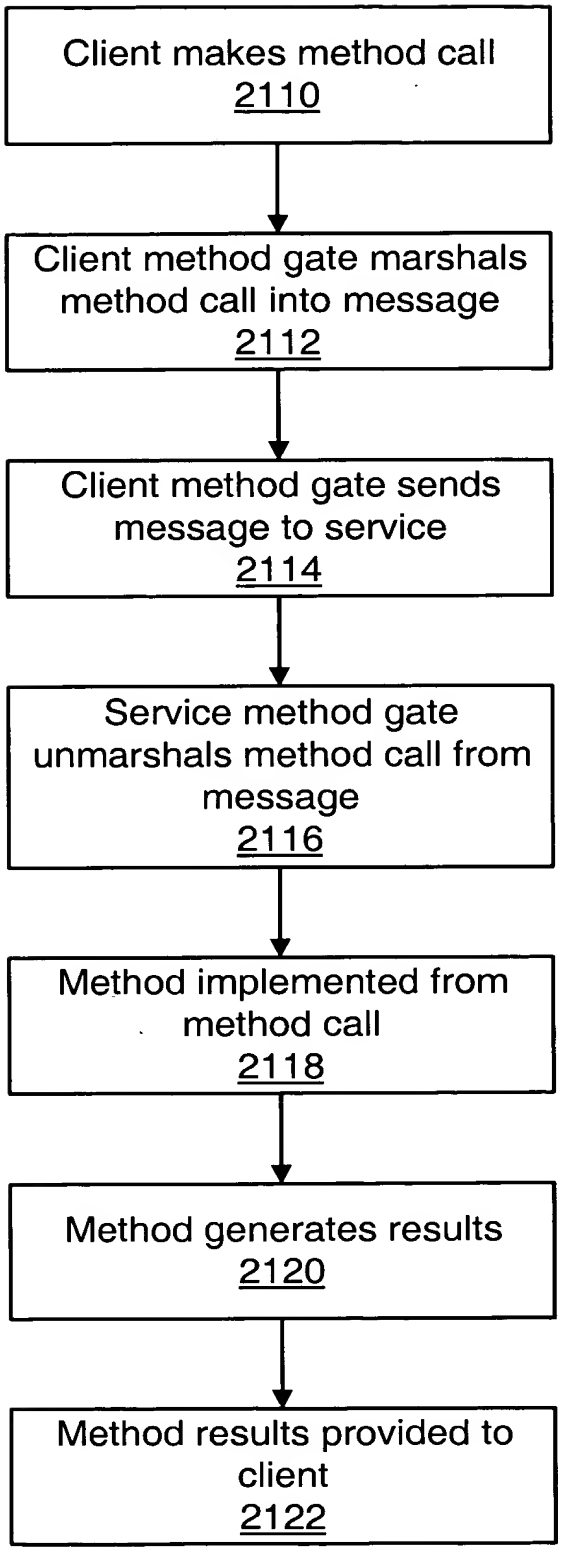


Figure 45b

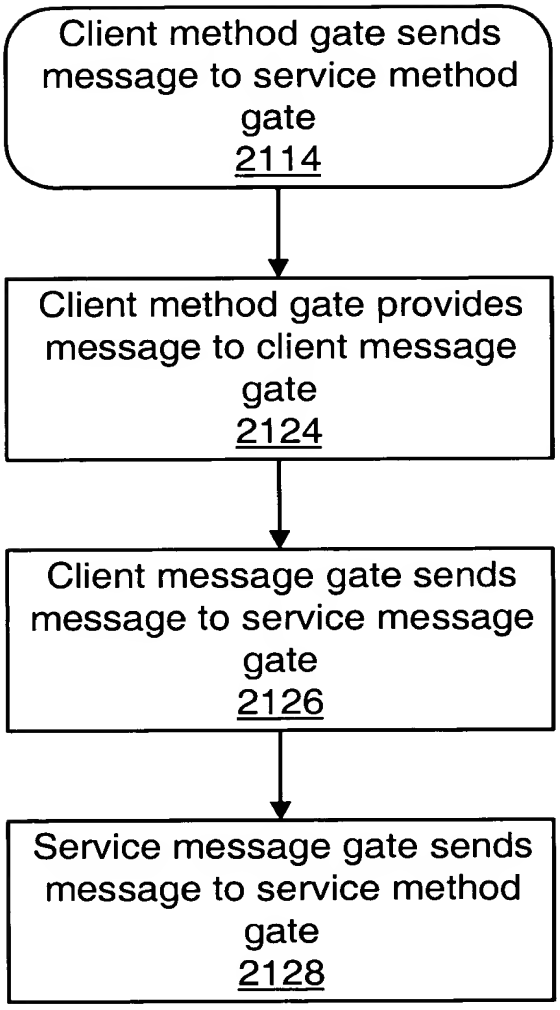


Figure 45c

0054704.0950

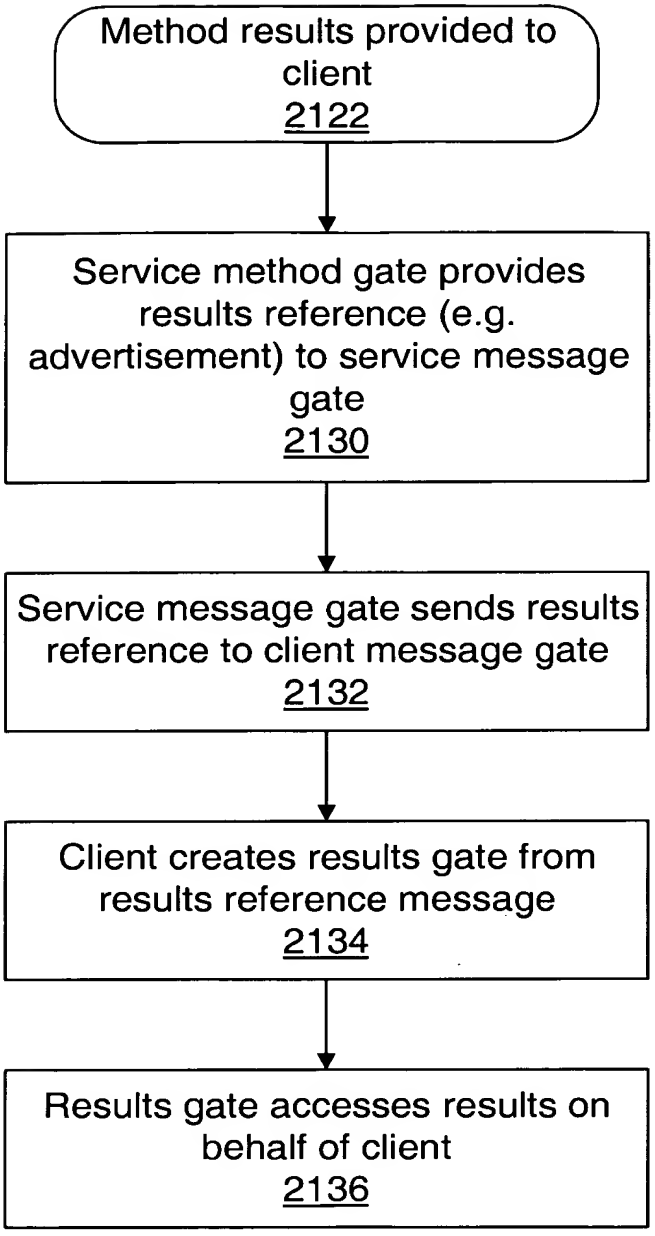


Figure 45d

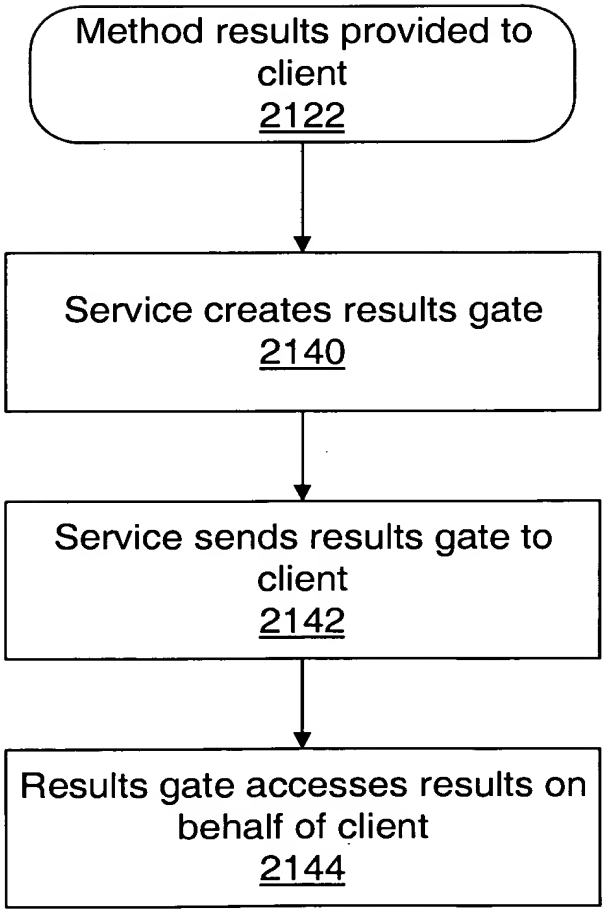


Figure 45e

0960360 - 1074900

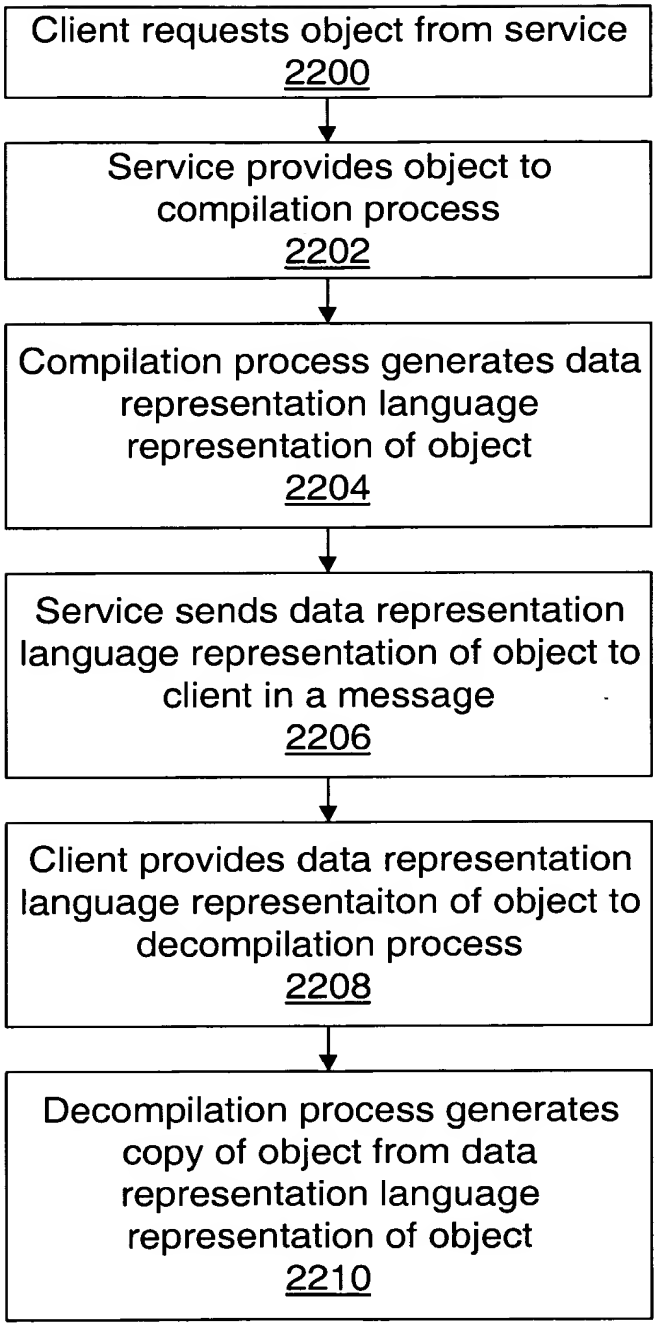


Figure 46

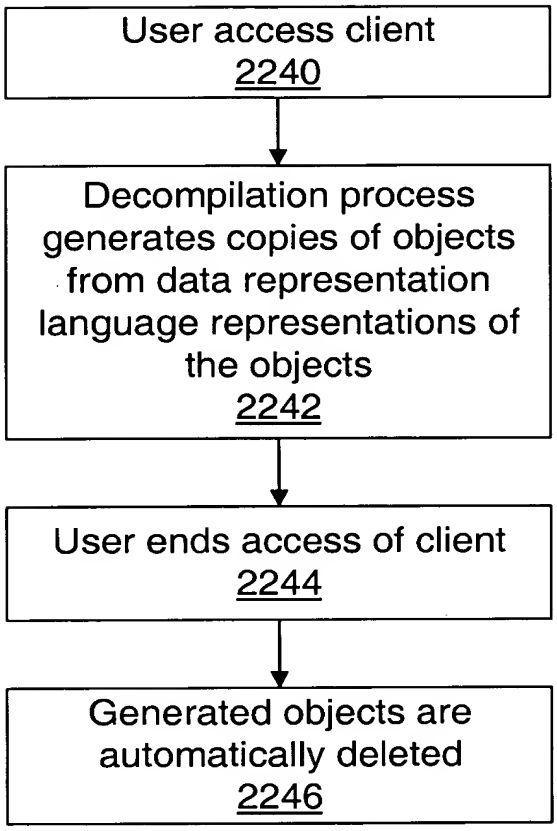


Figure 47

0503-1703P-SG

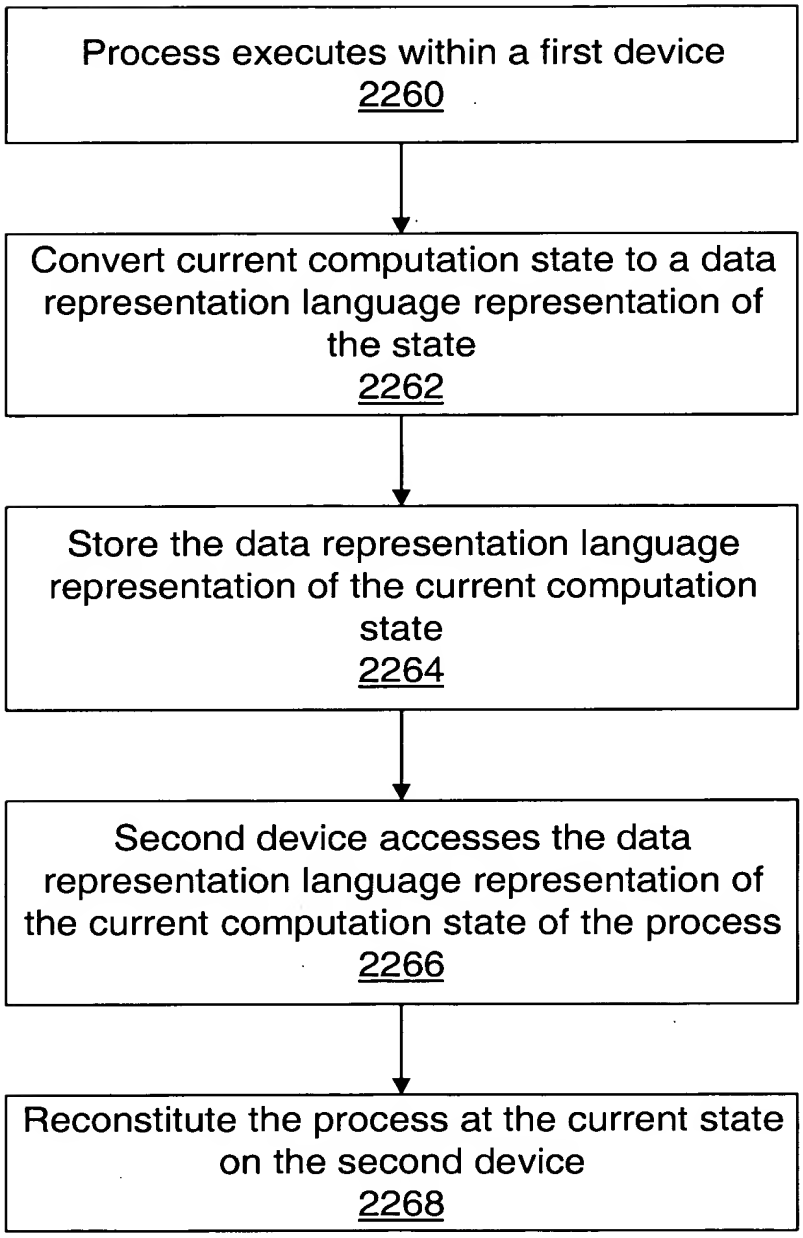

Process executes within a first device
2260
Convert current computation state to a data representation language representation of the state
2262
Store the data representation language representation of the current computation state
2264
Second device accesses the data representation language representation of the current computation state of the process
2266
Reconstitute the process at the current state on the second device
2268

Figure 48

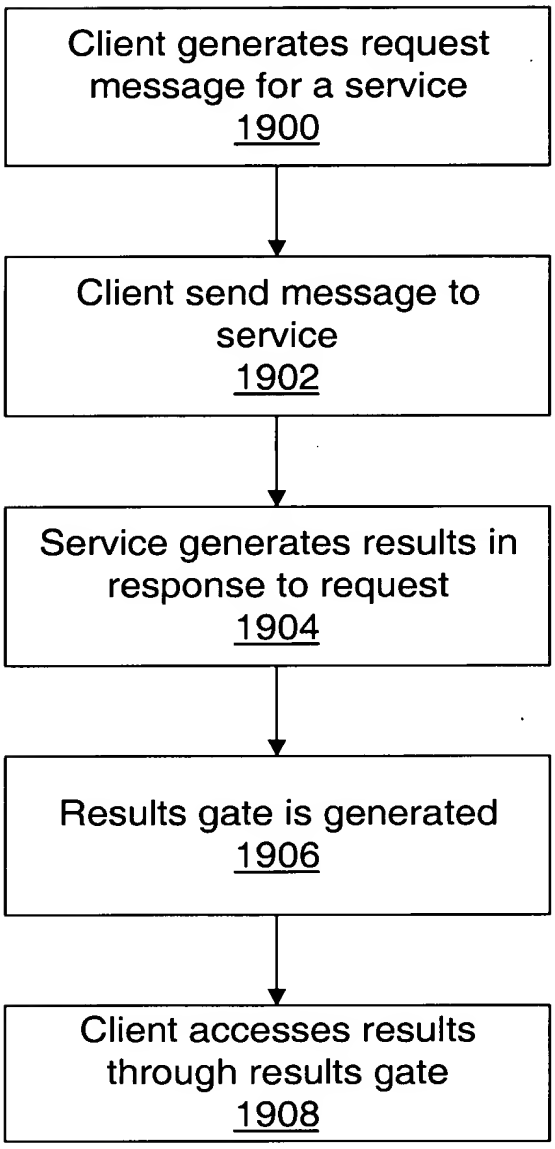


Figure 49

05603681.1050